

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF NEW YORK**

SERTA SIMMONS BEDDING, LLC and  
DREAMWELL, LTD.,

Plaintiffs,

v.

CASPER SLEEP INC.,

Defendant.

Civil Action No. 17-cv-7468

**Redacted for Public Filing**

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**DECLARATION OF BERNHARD KUCHEL IN SUPPORT OF  
DEFENDANT CASPER SLEEP INC.’S OPPOSITION TO  
PLAINTIFFS’ MOTION FOR PRELIMINARY INJUNCTION**

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I, Bernhard Kuchel, hereby declare under penalty of perjury:

**I. INTRODUCTION**

1. I have been retained by Defendant Casper Sleep Inc. to provide opinions regarding U.S. Patent Nos. 7,424,763 (“the ’763 patent”); 7,036,173 (“the ’173 patent”); and 8,918,935 (“the ’935 patent”). Specifically, I have been asked to respond to the opinions of Mr. Matthew Clift and opine whether the Casper Wave mattress infringes claims 1, 4, 6, and 7 of the ’763 patent, and whether the manufacture of the Casper Wave mattress infringes claims 5 and 6 of the ’173 patent and claims 10 and 12 of the ’935 patent (collectively, the “Asserted Claims”).

2. I have personal knowledge of the facts and opinions set forth in this declaration and, if called upon to do so, I would testify competently thereto.

3. I am being compensated for my work on this case at the rate of \$400 per hour, plus reimbursement of expenses. I do not have a financial interest in the outcome of this matter.

**II. QUALIFICATIONS AND EXPERIENCE**

4. I earned a Bachelor’s of Mechanical Engineering with High Honors from The Georgia Institute of Technology in 1986, and I have over thirty years of professional experience in the mechanical engineering field. Since 1995, I have focused my career in the mattress and bedding industry.

5. I have been a lead research and development executive involved in designing, specifying, testing, and bringing to market new mattress and foundation technologies for various international manufacturers, including mattress manufacturers Simmons Company (1995–2004) and Sealy, Inc. (2005–2008). During my career as an R&D executive, I led and managed teams of engineers and designers to develop and refine numerous products and innovations that relate to all aspects of mattress, foundation, and bedding design. I coordinated and supervised all aspects of mattress product design, testing, and development during my tenure as Director of Advanced Technology and Product Development at Sealy and as Director of Process Development at

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Simmons Company. Since 2008, I have worked as an independent consultant, consulting on various topics, such as product design, process development, and manufacturing methodologies, including for mattresses and other bedding products. I am listed as an author of eight U.S. Patents relevant to the design and manufacture of mattresses (U.S. Patent Nos. 5,746,877; 5,749,133; 6,718,726; 6,931,685; 7,168,117; 8,099,811; 6,944,899; and 7,047,581) and have authored or contributed as an author to numerous pending patent applications. Thus, I am very familiar with the design and development process for creating mattresses, including all-foam mattresses.

6. A detailed summary of my educational background, professional experience, and cases in which I have testified as an expert witness is set forth in my curriculum vitae attached as Appendix A. I reserve the right to rely on anything in my curriculum vitae to demonstrate my qualifications to serve as an expert in this matter.

### **III. MATERIALS CONSIDERED**

7. In addition to my experience in this field as summarized above, the materials that I considered in forming the opinions set forth in this report include all references cited in this report as well as the list of materials attached as Appendix B to this declaration. I reserve the right to modify or supplement my opinions, as well as the basis for my opinions, as I have the opportunity to review and consider additional information.

### **IV. LEVEL OF ORDINARY SKILL IN THE ART**

8. Mr. Clift opined that, “on or about October 2002, a person of ordinary skill in the art (‘POSITA’) relating to the technology of the Asserted Patents would have had a bachelor’s degree, typically in mechanical, chemical or manufacturing engineering or design. Alternatively, a POSITA would have had an associate’s degree in design or manufacturing technology and several years of experience working in the mattress industry.” Clift Decl. ¶ 13. I have applied Mr. Clift’s definition of a person of ordinary skill in the art in forming my opinions in this declaration. I reserve the right to offer an alternative definition at a later time.

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9. Based on my educational and employment background, I am qualified to provide opinions concerning what a person of ordinary skill in the art—under Mr. Clift’s definition of the term—would have known and understood on or about October 2002. Indeed, with my education and employment, I would have been considered a person of ordinary skill in the art on or about October 2002.

### **V. LEGAL STANDARDS**

#### **A. Claim Construction**

10. I understand that there are two types of claims: independent claims and dependent claims. I understand that an independent claim stands alone and includes only the limitations it recites. I understand that a dependent claim, on the other hand, is a claim that depends on another claim. I understand that dependent claims include all of the limitations recited in the dependent claim as well as any limitations included in the corresponding independent claim.

11. For purposes of this analysis, I have applied the ordinary and customary meaning of the claims, as they would be understood by a person of ordinary skill in the art at the time of the invention, in light of the claim language itself, the written description, and the prosecution history.

#### **B. Infringement**

12. I understand that to demonstrate infringement, the party alleging infringement must prove that the accused system, method, or apparatus meets each and every claim limitation, properly construed, either literally or under the doctrine of equivalents. I understand that Mr. Clift has not alleged that the Casper Wave infringes under the doctrine of equivalents. I reserve the right to respond if Mr. Clift later alleges infringement under the doctrine of equivalents.

13. I understand that literal infringement occurs when every element of an asserted claim is found in the accused product. I understand that the infringement analysis is done by comparing the accused product or method to a claim on a limitation-by-limitation basis, and that there is no literal infringement if any limitation is absent in an accused product or method.

**C. Invalidity**

**1. Anticipation**

14. I understand that a person cannot obtain a patent if someone else already has made an identical invention. I understand that to anticipate a claim, each element in the claim must be, as properly construed, present in a single item of prior art either expressly or inherently. In determining whether every one of the elements of the claimed invention is found in the prior art, I understand that one should take into account what a person of ordinary skill in the art would have understood from his or her examination of the particular prior art.

**2. Obviousness**

15. I understand that, for a claim to be invalid as obvious, the party asserting invalidity must identify prior art references that alone or in combination with other prior art references would have rendered the claim obvious to one of ordinary skill in the art at the time of the invention. I understand that obviousness is a question of law based on underlying factual findings: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective indicia of non-obviousness.

16. I understand that in evaluating whether patent claims are invalid as obvious, secondary considerations of non-obviousness are considered. I understand that these secondary considerations of non-obviousness are considered with the balance of obviousness evidence in the record to act as a check against impermissible hindsight bias. I further understand that the patentee must establish a nexus between the merits of the claimed invention and the evidence of secondary considerations, in order to give such considerations substantial weight in the determination of non-obviousness.

17. I understand that the secondary considerations of non-obviousness include commercial success, long-felt but unsolved needs, copying, praise, unexpected results, industry acceptance, failure of others, and skepticism by experts.

**VI. OVERVIEW OF THE ASSERTED PATENTS**

18. The Asserted Patents are all entitled “Channel-Cut Cushion Supports.”

19. The application for the ’173 patent (Appl. No. 10/274,441) was filed on October 17, 2002, and issued on May 2, 2006.

20. The ’763 patent is a continuation of the ’173 patent. The application for the ’763 patent (Appl. No. 11/415,816) was filed on May 1, 2006, and issued on September 16, 2008.

21. The ’935 patent is a continuation of application no. 12/283,909 (which issued as U.S. Patent No. 8,250,689), which itself is a continuation of the ’763 patent. The application for the ’935 patent (Appl. No. 13/548,081) was filed on July 12, 2012, and issued on December 30, 2014.

22. The Asserted Patents relate to mattresses, and more particularly to “control[ling] variations in firmness at particular regions within a mattress.” ’173 patent at 1:5–7, 17–20.<sup>1</sup> The Asserted Patents purport to achieve the goal of varying “support characteristics within a foam mattress body” by “inserting reinforcements of various types into channels cut or otherwise formed within the foam.” *Id.* at 1:24–26.

23. Figure 1 of the Asserted Patents (reproduced below) illustrates “a top perspective of a mattress” according to an embodiment of the invention. *Id.* at 2:1. The “mattress 10 includ[es] a body 12 formed of foam and at least one insert 20 located within the body 12.” *Id.* at 2:2–5. The specification explains that “[a]t least one channel 19 is disposed within the body 12. An insert may be located within the channel 19.” *Id.* at 2:33–34.

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<sup>1</sup> The specifications of the three Asserted Patents are substantially identical. For ease of reference, in this Overview, I cite only to the specification of the ’173 patent.



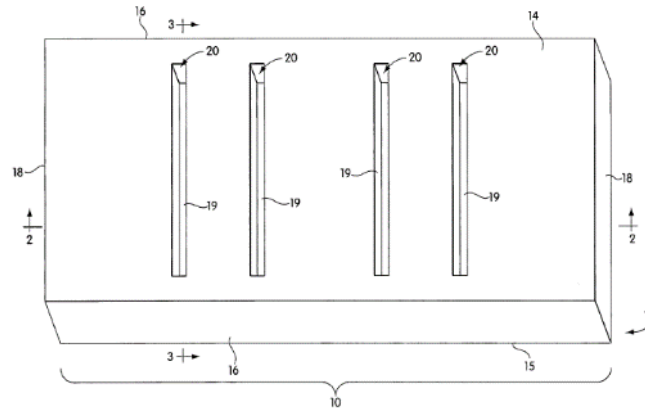


Fig. 1

24. The specification further states that “the channels 19 and respective inserts 20 may be placed and distributed along the axis connecting the end surfaces 18 to provide for areas of different firmness or support characteristics along the body of one or more users lying on the mattress 10.” *Id.* at 2:41–46. “In general, the inset would provide . . . greater firmness[] than the surrounding foam of a mattress body.” *Id.* at 2:56–61.

## VII. THE CASPER WAVE DOES NOT INFRINGE THE ASSERTED PATENTS

### A. The Casper Wave Does Not Infringe the ’763 Patent

25. Mr. Clift alleges that the Casper Wave infringes claims 1, 4, 6, and 7 of the ’763 patent. Clift Decl. ¶¶ 56–83. I disagree. The Casper Wave does not meet at least the following limitations of claims 1, 4, 6, and 7 of the ’763 patent:

1. **The Casper Wave does not include “a body [with] at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom”**

26. Independent claim 1 of the ’763 patent requires “a body made of foam having a mechanical characteristic, the body having . . . at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom.” Mr. Clift accuses the “High Resiliency Foam layer” with “channels extending into the High Resiliency Foam layer perpendicularly from the bottom surface thereof” as meeting this limitation. Clift Decl. ¶¶ 60, 63. I disagree.

27. The Casper Wave does not have “at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom.” As seen below, the top and bottom surface of the Casper Wave body are solid, with no channels extending into the body. Mr. Clift agrees that the Casper Wave, as a whole, does not have any channels on the top or bottom surfaces. *See* Clift Dep. Tr. at 95:5–18; *id.* at 127:1–10. The only channels in the Casper Wave are in the interior of the mattress.



28. Mr. Clift’s opinion that the Casper Wave satisfies this claim limitation is based on accusing a single, one-and-a-half inch thick layer in the middle of the mattress—the High Resiliency Foam layer—of being the “body” of the mattress. In my opinion, this is contrary to the plain meaning of the term, as understood in light of the specification and prosecution history.

29. I note that Mr. Clift testified that the term “body” is not one that he has heard used in industry (he has heard, instead, the term “core” to refer to the assembled layers), and that he has never referred to the layers or the core of a mattress as a “body.” *Id.* at 99:14–23, 100:20–101:5. Mr. Clift admitted, however, that his interpretation of “body” was *not* based on any review of the specification or its prosecution history. *See* Clift Dep. Tr. at 101:17–23, 129:11–14.

30. The accused High Resiliency Foam layer is merely a “layer” of the Casper Wave body, not a “body” itself within the meaning of the Asserted Patents. The Asserted Patents draw a clear distinction between a mattress “body” and the “layers” that may make up the body. In particular, the specification explains:

While the embodiment in FIG. 1 has a body 12 of homogenous construction, the body 12 could be formed of a combination of various types of foam with different mechanical characteristics. For example, ***the body 12 could be composed of multiple layers*** of such material, varying in respective mechanical characteristics,

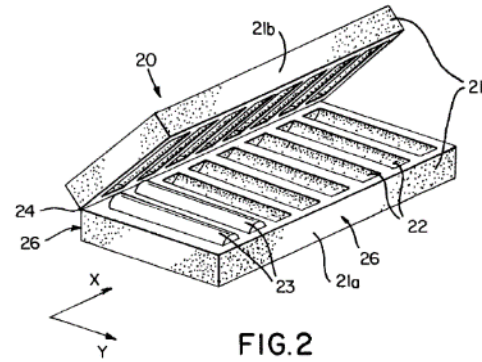
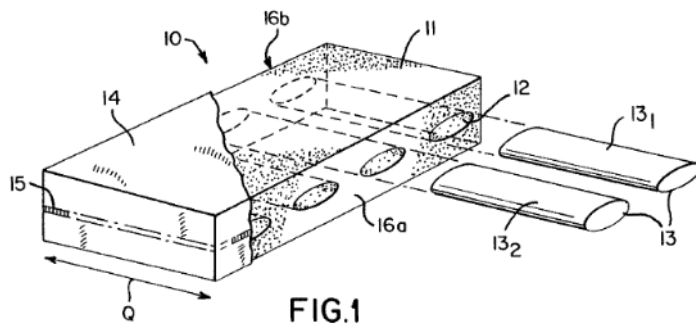
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progressing in layer upon layer from the top surface 14 to the bottom surface 15. In addition to such top-to-bottom layering (or in substitution therefor), ***the body 12 could be composed of multiple layers*** of such material, varying in respective mechanical characteristics, progressing in layer upon layer between both end surfaces 18, and/or between both side surfaces 16.

’763 patent at 2:26–38 (emphasis added). In other words, the mattress “body” can either (1) be of homogenous construction, or (2) be “composed of multiple layers.” It follows that a single layer of a multi-layer mattress is not itself the “body.” The Casper Wave has the latter construction—being composed of multiple layers. As in the specification, a single layer of the Casper Wave is not a body. At his deposition, Mr. Clift was unable to identify any place in the specification where the term “body” is used to describe a single layer of a multi-layer mattress. *See* Clift Dep. Tr. at 104:1–105:1. I am not aware of any.

31. Mr. Clift’s accusation that a single layer of a multi-layer mattress is a “body” is also inconsistent with arguments made during prosecution, which I understand Mr. Clift *did not* review in determining what “body” means in the Asserted Patents. Clift Dep. Tr. at 129:11–14. In particular, during prosecution, the applicant for the ’763 patent confirmed that the claims are limited to embodiments in which the plurality of channels are disposed on the top or bottom surface of the *mattress*—not the top or bottom surface of any layer in a mattress.

32. During prosecution of the ’763 patent, on August 7, 2006, the examiner rejected pending claim 1 as anticipated by U.S. Patent No. 6,061,856 to Hoffmann (“Hoffmann”). As seen below in Figures 1 and 2 of Hoffmann, and as explained by the examiner, “Hoffmann discloses a mattress comprising a channel extending into the body 11 perpendicularly therefrom, the side surface 16a being read as the channel surface. Hoffmann also discloses a plurality of channels 12 including inserts 13 affixed therein.” ’763 Prosecution History, Office Action at 4 (Aug. 7, 2006).



33. In response to the rejection, the applicant amended pending claim 1 as seen below:

1. (Currently amended) A mattress comprising:

[[A]] a body made of foam having a mechanical characteristic, the body having a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces, at least one of the top and bottom surfaces ~~being a channel surface that includes~~ including a plurality of channels channel extending into the body perpendicularly therefrom; and

an insert, having a mechanical characteristic different from the mechanical characteristic of the foam and affixed within the channel, the insert reinforcing the body[[.]].

~~wherein each channel has affixed therein an insert that reinforced the body~~

'763 Prosecution History, Amendment in Response to Non-Final Office Action at 2 (Nov. 7, 2006).

34. The applicant distinguished Hoffmann by arguing that having a channel on either the top or bottom surface of the mattress differs from having a channel disposed on the interior of the mattress, as seen in Hoffman:

Hoffmann is directed to a mattress having a base member provided with cylindrical cavities whereupon cylindrical inserts are adapted to be placed into the cavities. These cavities or bores are centrally disposed within the base member and “extend through the interior” of the base member sometimes from the sides, **but not on the top or bottom surface of the mattress.** (See Col. 3, Lines 21-22). Figure 2 of Hoffmann shows a divided base that again **does not include a channel extending from its top or bottom surface.** In particular, the base member in Figure 2 is divided ‘to facilitate placement of inserts’ within the centrally disposed cavities. The Examiner admits that ‘Hoffmann discloses channels extending from the side surface’ and identifies the side surfaces of the base member as ‘side surface 16a’ illustrated in Figure 1. In contrast, amended base claim 1 includes “at least one of top and bottom surface including a channel extending into the body perpendicularly therefrom.” The channels extend perpendicularly from at least one of the top and bottom surface and the inserts are affixed within these top and/or bottom surface channels to reinforce the body. Thus, Hoffmann does not teach or suggest all the elements of amended base claims 1 and, therefore, the §102 Rejection of base claim 1 should be withdrawn.

’763 Prosecution History, Amendment in Response to Non-Final Office Action at 6-7 (Nov. 7, 2006) (emphases added).

35. Thus, the applicant limited the scope of claim 1 to embodiments in which a channel extends from “the top or bottom surface of the mattress,” as opposed to extending through the interior of the mattress, as in the Casper Wave. Just as in Hoffmann, the channels in the Casper Wave are “centrally disposed,” with no channels “on the top or bottom surface of the mattress.”<sup>2</sup>

36. The Casper Wave therefore does not include “a body [with] at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom,” and thus does not infringe claim 1 of the ’763 patent.

**2. The Casper Wave does not include “a plurality of inserts, each insert . . . affixed within one of the plurality of channels”**

37. Independent claim 1 of the ’763 patent requires “a plurality of inserts, each insert . . . affixed within one of the plurality of channels.” Mr. Clift accuses the “Polymer Network” on the bottom surface of the High Resiliency Foam layer as meeting this limitation. Clift Decl. ¶ 64. I disagree.

38. Based on the claims, specification, and prosecution history of the Asserted Patents, a person of ordinary skill in the art would understand that this limitation requires a pre-existing object or construction, such as another piece of foam or an arrangement of springs, to be inserted into and “affixed” within a channel. *See, e.g.*, ’763 patent at 3:18–24. The word “affix,” for example, is defined as “attach or fasten something to something else.” Oxford English Dictionary at 11. A person of ordinary skill in the art would understand that this means the thing being “affixed” must already exist. Mr. Clift testified, consistent with this definition, that a person of

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<sup>2</sup> Mr. Clift’s accusation that the High Resiliency Foam layer is the claimed body is also inconsistent with his infringement arguments for the ’173 and ’935 patents, for which Mr. Clift points to the “mattress as a whole”—*i.e.*, the collection of five layers—as the body of the Casper Wave. *See* Clift Decl. ¶¶ 88, 105.

ordinary skill in the art would understand an “insert” to be “an object [that] is placed in a cavity.”  
*See* Clift Dep. Tr. at 142:2–15. I agree with this understanding.

39.

[REDACTED]

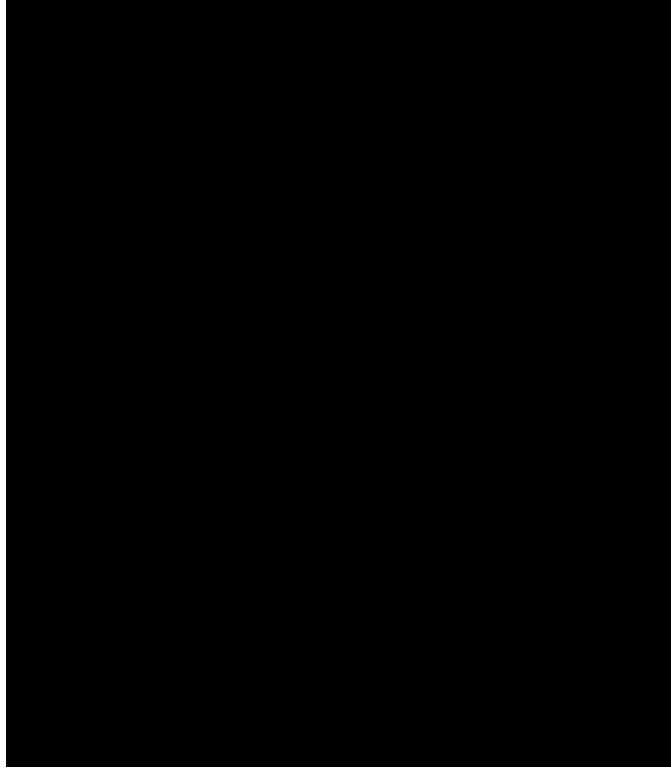
40. The Casper Wave therefore does not include “a plurality of inserts . . . affixed within one of the plurality of channels,” and thus does not infringe claim 1 of the ’763 patent.

**3. The Casper Wave does not include “a material that covers at least one of the channels, the material securing at least one of the inserts within one of the channels”**

41. Dependent claim 4 of the ’763 patent requires “a material that covers at least one of the channels, the material securing at least one of the inserts within one of the channels.” Mr. Clift accuses the Support Foam layer as “cover[ing]” the Polymer Network and “secur[ing]” the Polymer Network within the High Resiliency Foam layer. Clift Decl. ¶¶ 73–74. I disagree.

42.

[REDACTED]



43. Mr. Clift testified that he never examined whether the Polymer Network would fall out of the channels if the bottom layer were not in place. *See* Clift Dep. Tr. at 151:7–10. [REDACTED]

[REDACTED]

[REDACTED] The Support Foam, therefore, does not “secur[e] at least one of the inserts within one of the channels.”

**B. The Manufacture of the Casper Wave Does Not Infringe the ’173 Patent**

44. Mr. Clift alleges that the manufacture of the Casper Wave infringes claims 5 and 6 of the ’173 patent. Clift Decl. ¶¶ 84–101. I disagree. The manufacture of the Casper Wave does not meet at least the following limitations of claims 5 and 6 of the ’173 patent:

1. **The manufacture of the Casper Wave does not include “forming a channel into the body within the region . . . wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel”**

45. Claim 5 of the ’173 patent requires “forming a channel into the body within the region . . . wherein forming the channel comprises assembling a plurality of rectangular foam

pieces into a mattress that includes the channel.” Mr. Clift accuses the assembly of the five layers of the Casper Wave into a mattress as meeting this limitation. Clift Decl. ¶ 96. I disagree.

46. The voids on the bottom of the Higher Resiliency Foam layer are formed solely by cutting, not by “assembling a plurality of rectangular foam pieces into a mattress that includes the channel.” Based on the specification of the Asserted Patents, this claim limitation does not cover channels formed solely by cutting. Column 5 of the specification describes three specific and distinct methods of forming channels in the mattress:

[1] Channels may be formed in the mattress by cutting. . . . [2] As an alternative to cutting instruments, one or more channels 19 may be formed in the body 12 of a mattress 10 by molding the channels 19 into the foam of the body 12 as the body 12 itself is molded. [3] *Additionally, or instead, the body 12 may be formed of a number of rectangular foam sections assembled so that the assembled body 12 includes the channels 19.*

’173 patent at 5:3–41 (emphasis added). In other words, channels can be formed through (1) cutting, (2) molding, or (3) assembly of rectangular foam sections.

47. The differences in these methods of forming channels can be seen in Figures 3 and 4 of the Asserted Patents. As seen below, Figure 3 depicts a contiguous block of foam with a channel 19 that was either cut from or molded into the foam. Figure 4 depicts a channel 19 formed through assembly of rectangular foam sections (*i.e.*, layers 40 on the left and right, as well as the foam layer across the bottom).

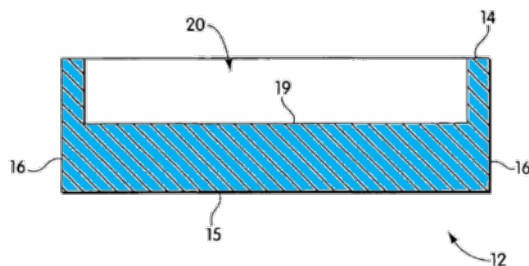


Fig. 3

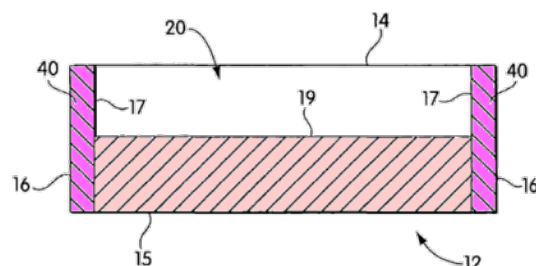


Fig. 4

See ’173 patent at Figs. 3 and 4 (color added); Clift Dep. Tr. at 165:19–25 (agreeing that “figure four show[s] an example of assembling rectangular foam pieces to form a channel”).

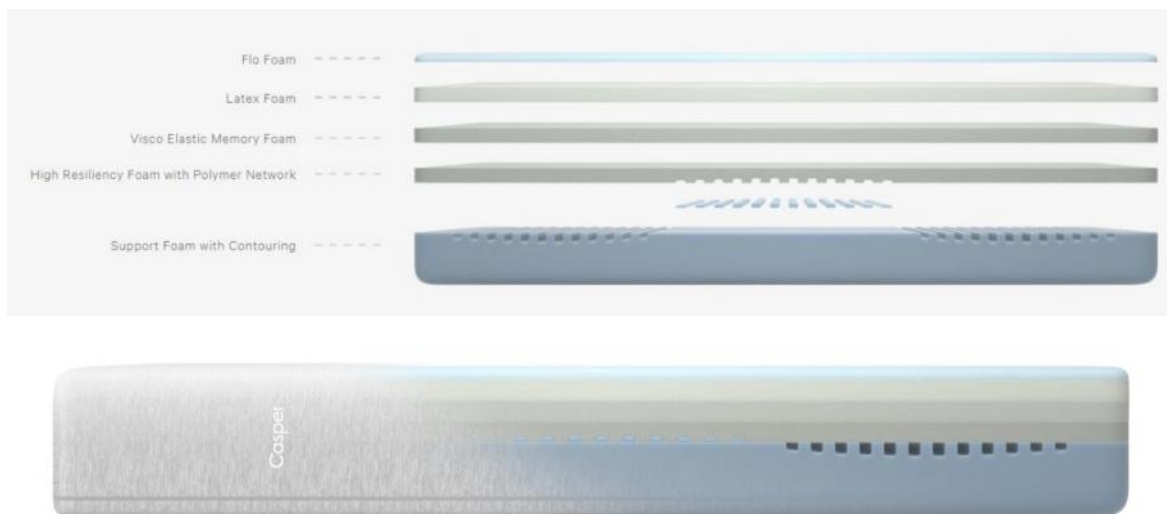


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48. Claim 5 of the ’173 patent requires forming channels by assembly of rectangular foam sections—not cutting or molding. This is evident, for example, by comparing the language of the claims to the language of the specification describing forming channels by assembly:

Claim Language	Specification Language
“forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel”	“the body 12 may be formed of a number of rectangular foam sections assembled so that the assembled body 12 includes the channels”

49. The assembly of the five layers accused by Mr. Clift does not “form [a] channel.” The accused channels, *i.e.*, the voids on the bottom surface of the High Resiliency Foam layer, are formed by cutting, not by assembling rectangular foam pieces. As reflected in the diagrams of the Casper Wave below (the first one showing the layers before the accused “assembly” step and the other one showing the layers after “assembly”), the channels exist *before* the assembly step begins, and assembly does not create any channels that were not formed by cutting.



50. To be sure, dependent claim 6 recites “wherein forming the channel further comprises cutting foam out of the body.” This claim means that in addition to forming channels by assembling rectangular blocks, the method can include cutting. But it does not erase the requirement of the independent claim that at least one channel be formed by the act of assembling rectangular foam pieces.

51. The prosecution histories of the ’173 and ’935 patents confirm that the claims require assembling pieces of foam to form channels.<sup>3</sup> I note, again, that Mr. Clift testified that he *did not* consider the prosecution histories of these patents when “determining what it means to assemble rectangular foam pieces to form the body having a channel in the region.” *See* Clift Dep. Tr. at 166:1–5.

52. As originally drafted, the claims of the ’173 patent did not include the limitation “forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel.” The examiner rejected the pending claims as anticipated and/or obvious by U.S. Patent No. 4,768,253 to Boyd (“Boyd”). The examiner explained: “Boyd et al discloses a foam support 32 including a channel 34 for receipt of an insert 36 including springs. ***The method of forming the channels whether by cutting or molding is an obvious matter of design choice.***” ’173 Prosecution History, Office Action at 2 (Mar. 9, 2004) (emphasis added).

53. In response, the applicant amended pending claim 9 (which issued as claim 5) to include the limitation “wherein forming the channel comprises assembling a plurality of rectangular form pieces into a mattress that includes the channel”—*i.e.*, the method of manufacture that the examiner did not say was an obvious matter of design choice. ’173 Prosecution History, Amendment in Response to Non-Final Office Action at 2–3 (Aug. 11, 2004). The applicant explained that it amended to focus the claims on a method of manufacture that was not taught in Boyd (the one the examiner had not found was a matter of obvious design choice):

In independent claim 9, as amended, the Applicant claims a method of forming the channel comprising assembling a plurality of rectangular foam pieces into a mattress that includes the channel. ***Nowhere does Boyd suggest a method of forming a channel that includes assembling a plurality of rectangular foam pieces.***

---

<sup>3</sup> The ’935 patent contains a nearly identical limitation: “assembling the rectangular foam pieces to form the body having a channel in the region.”

*To the contrary, Boyd teaches away from using a plurality of foam pieces to assemble a mattress including a channel.* Boyd discloses a mattress comprising “a substantially continuous [sic, continuous] foam body including a substantially central opening” (see claim 1 at col. 6, ll. 54-58 (emphasis added)). Boyd further teaches that the interfaces between separate pieces of a mattress – such as foam body 32 and spring assembly 36 – tend to “pull apart and separate when loaded with a sleeping person,” and that this is an undesirable effect to be overcome (for example, by securing both to a high tensile strength substrate mesh). See col. 5, l. 53 to col. 6, l. 7. Nowhere does Boyd suggest that it is advantageous to form a mattress with even more separate pieces that need to be secured. . . . In sum, ***Boyd not only fails to provide any teaching or suggestion of assembling a plurality of rectangular foam pieces into a mattress that includes a channel as claimed by the Applicant,*** but Boyd also teaches that the use of multiples pieces to form a mattress has disadvantages.

*Id.* at 4–5 (emphases added). The examiner withdrew his rejection and allowed the claim in light of this amendment and explanation.

54. The prosecution history of the ’935 patent, which contains nearly identical claim language, further confirms that the claims require assembling pieces of foam—not cutting—to form channels. The claims of the ’935 patent as originally drafted required “assembling the rectangular foam pieces to form the body having a channel in the region” (similar to claim 5 of the ’173 patent). During prosecution, the examiner rejected the pending claims as being anticipated by U.S. Patent No. 4,706,313 to Murphy (“Murphy”). The applicant distinguished Murphy because it used cutting to form channels:

Murphy’s method for manufacturing its decubitis ulcer mattress generally includes forming a foam body of two layers. One layer, i.e., ***the top layer is cut through an entire thickness thereof to form recesses at selected locations.*** The layers are then joined by an adhesive to form a unitary foam body in which the top surface of the bottom layer forms the bottom of each recess. ***There is no disclosure or even suggestion of a method including . . . assembling the rectangular foam pieces to form the body having a channel in the region as claimed.***

’935 Prosecution History, Amendment at 6–7 (Jan. 15, 2014) (emphasis added).

55. Just like in Murphy, which the applicant said does not teach this claim limitation, in the manufacture of the Casper Wave, one layer is cut and then adhered to other layers to form a unitary foam body. No channels are formed by assembling the layers together.

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56. The manufacture of the Casper Wave therefore does not include “forming a channel into the body within the region . . . wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel,” and thus does not infringe claim 5 of the ’173 patent.

**2. The manufacture of the Casper Wave does not perform the steps of the claim in the required order**

57. Claim 5 of the ’173 patent recites four steps: (1) “providing a body made of foam shaped and sized for use as a mattress”; (2) “locating a region of the body where increased support is desired”; (3) “forming a channel into the body within the region”; and (4) “affixing an insert into the channel, the insert having a greater firmness than the body of foam.” Claim 5 further requires that the “forming” step comprise “assembling a plurality of rectangular foam pieces into a mattress that includes the channel.” Mr. Clift testified that, in forming his opinions, he did not “consider whether the steps of these methods must be practiced in a specific order.” Clift Dep. Tr. at 158:11–14. It is my opinion that these steps must be performed in the order written, which is not done in the manufacture of the Casper Wave.

58. I understand that, although the steps of a method claim do not always have to be practiced in the recited order, they do when the plain language of the claims require it. Here, however, because each step refers to an element that is introduced in the previous step, a person of ordinary skill in the art would understand that the steps must be performed in that order. For example, the antecedent basis for “*the* channel” in the “affixing” step comes from the language “forming *a* channel” in the prior “forming” step. Thus, the “affixing” of the insert must occur *after* the “forming” of the channel. Furthermore, the language “wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel” modifies the “forming” step, meaning that the assembly of the rectangular foam pieces must occur as part of that step and before the “affixing” step. Thus, it is my understanding based on the plain

language of the claims that the affixing of the insert into the channel must occur *after* assembling the foam pieces to form the body with channels.

59. In other words, the relevant steps must occur in the following order:

- (1) providing a body made of foam shaped and sized for use as a mattress;
- (2) locating a region of the body where increased support is desired;
- (3) forming a channel into the body within the region, . . . wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel; and
- (4) affixing an insert into the channel.

60. Mr. Clift agreed that at least the “affixing” step would need to occur after the “forming” step. *See* Clift Dep. Tr. at 160:16–161:5. Mr. Clift accuses the steps of cutting the voids, applying the Polymer Network, and then assembling the layers as satisfying these two steps. Clift Decl. ¶¶ 92–93, 96. Because these steps in the manufacture of the Casper Wave do not occur in the order required by the claims—as Mr. Clift agreed—there is no infringement.

61. [REDACTED]

[REDACTED]

[REDACTED] In the claims, by contrast, the “forming” step (which includes assembling rectangular foam pieces) must occur *before* the “affixing” step.

62. The manufacture of the Casper Wave therefore does not include “forming a channel into the body within the region . . . wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel” *before* “affixing an insert into the channel” as required by the claims, and thus does not infringe claim 5 of the ’173 patent.

- 3. The manufacture of the Casper Wave does not include “affixing an insert into the channel, the insert having a greater firmness than the body of foam”**

63. Claim 5 of the ’173 patent requires “affixing an insert into the channel, the insert having a greater firmness than the body of foam.” Mr. Clift accuses the Polymer Network in the High Resiliency Foam layer as being an insert “affixed” into a channel. Clift Decl. ¶ 93. I disagree.

64. As with the ’763 patent, a person of ordinary skill in the art would understand that this claim requires “affixing” a pre-existing “insert” into a channel. Thus, for all of the reasons described above, the Polymer Network is not an “insert” that is “affix[ed] . . . into the channel.”

[REDACTED]

[REDACTED] Therefore, the manufacture of the Casper Wave does “affix an insert . . . having greater firmness than the body of foam.”

**C. The Manufacture of the Casper Wave Does Not Infringe the ’935 Patent**

65. Mr. Clift alleges that the manufacture of the Casper Wave infringes claims 10 and 12 of the ’935 patent. Clift Decl. ¶¶ 102–119. I disagree. The manufacture of the Casper Wave does not meet at least the following limitations of claims 10 and 12 of the ’935 patent:

- 1. The manufacture of the Casper Wave does not include “assembling the rectangular foam pieces to form the body having a channel in the region”**

66. Claim 10 of the ’935 patent requires “assembling the rectangular foam pieces to form the body having a channel in the region.” Mr. Clift accuses the assembly of the five layers of the Casper Wave into a mattress as meeting this limitation. Clift Decl. ¶ 109. I disagree.

67. As explained above with respect to a similar limitation in claim 5 of the ’173 patent, the voids on the bottom of the Higher Resiliency Foam layer are formed solely by cutting, not by “assembling . . . rectangular foam pieces to form the body having a channel in the region.” For the same reasons explained above, including the description in the specification and the prosecution histories of the ’173 and ’935 patent—which Mr. Clift did not review in forming his

opinions about this limitation—this claim limitation does not cover channels formed solely by cutting. The manufacture of the Casper Wave therefore does not infringe.

**2. The manufacture of the Casper Wave does not perform the steps of the claim in the required order**

68. Claim 10 of the ’935 patent requires “assembling the rectangular foam pieces to form the body having a channel in the region; and affixing at least one insert having planar top and bottom surfaces into the channel.” Mr. Clift accuses the steps of cutting the voids, applying the Polymer Network, and then assembling the layers as satisfying these steps. Clift Decl. ¶¶ 109–110. I disagree.

69. As with the corresponding limitations in the ’173 patent, a person of ordinary skill in the art would understand that the steps must be performed in the recited order because each step refers to an element that is introduced in the previous step. For example, the antecedent basis for “*the* channel” in the “affixing” step comes from the language “form the body having *a* channel” in the “assembling” step. In other words, the relevant steps must occur in the following order:

- (1) assembling the rectangular foam pieces to form the body having a channel in the region;
- (2) affixing at least one insert . . . into the channel.

70. This does not occur in the manufacture of the Casper Wave. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In the claims, by contrast, the “assembling” step must occur *before* the “affixing” step.

71. The manufacture of the Casper Wave therefore does not include “assembling the rectangular foam pieces to form the body having a channel in the region” *before* “affixing at least one insert . . . into the channel” as required by the claims, and thus does not infringe claim 10 of the ’935 patent.

**3. The manufacture of the Casper Wave does not include “affixing at least one insert having planar top and bottom surfaces into the channel”**

72. Claim 10 of the ’935 patent requires “affixing at least one insert having planar top and bottom surfaces into the channel.” Mr. Clift accuses the Polymer Network in the High Resiliency Foam layer as being an insert “affixed” into a channel. Clift Decl. ¶ 110. I disagree.

73. For all of the reasons described above with respect to claim 1 of the ’763 patent and claim 5 of the ’173 patent, the Polymer Network is not an “insert” that is “affix[ed] . . . into the channel.” [REDACTED]

[REDACTED]

**4. The manufacture of the Casper Wave does not include an “insert [that] does not entirely fill the channel”**

74. Claim 10 of the ’935 patent requires “affixing at least one insert having planar top and bottom surfaces into the channel, . . . wherein the insert does not entirely fill the channel.” Mr. Clift points to an image from a mattress review website showing that the Polymer Network does not extend to a tiny portion of the groove on the side of the layer. *See* Clift Decl. ¶ 114. I disagree that this shows that the insert does not entirely fill the channel.

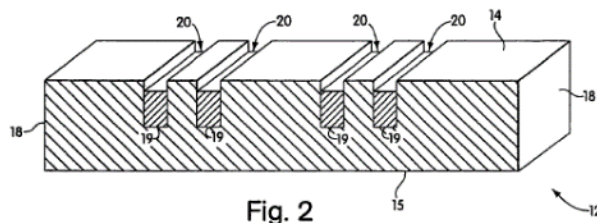
75. Based on my review of the specification and prosecution history of the ’935 patent—which Mr. Clift admits he did not consider when determining what this claim limitation means (*see* Clift Dep. Tr. at 167:1–5)—a person of ordinary skill in the art would understand that this limitation refers to whether the insert fills the depth of the channel, not whether it extends all the way to the lateral ends of the channel.

76. The support for this limitation comes from Fig. 2 of the ’935 patent (below) and the accompanying text. The ’935 patent states:

An insert 20 is located within the channel 19. The insert 20 is of a size substantially equal to the channel 19. The insert 20 may be substantially flush with the channel surface (in FIG. 2, the top surface 14) or *it may not entirely fill the channel* 19.



'935 patent at 3:21–24 (emphasis added). Thus, with respect to filling the channel, the specification describes two alternatives: (1) the top of the insert is flush with the channel surface, or (2) as seen in Fig. 2, the top of the insert is *not* flush with the channel surface. It is this second configuration that the specification describes as “not entirely fill[ing] the channel.” Notably, the specification does not ever discuss whether the inserts in Fig. 2 (or in any other figure or embodiment) extend all the way to the lateral ends of the channel. Thus, based on the specification alone, a person of ordinary skill in the art would understand the claim language “insert does not entirely fill the channel” to refer to whether the insert fills the channel to the channel surface.

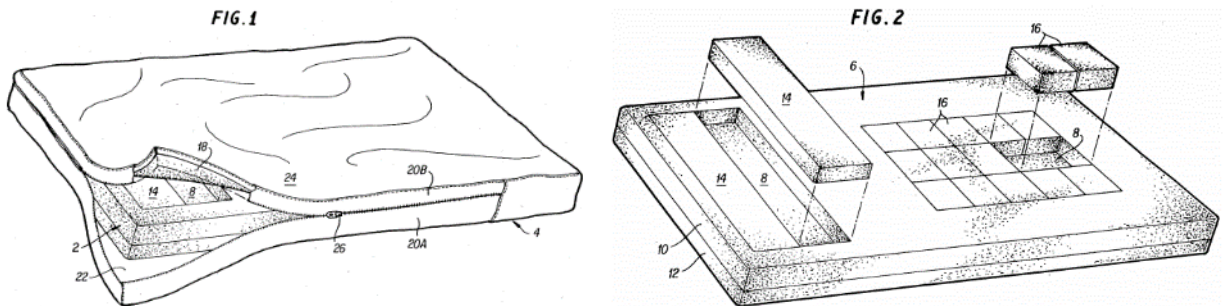


77. The applicant for the '935 patent confirmed this interpretation during prosecution. As filed, the '935 patent did not include the limitation that “insert does not entirely fill the channel.” The examiner rejected pending claim 14 (which issued as asserted claim 10) as being obvious over U.S. Patent No. 4,706,313 to Murphy, in view of U.S. Patent No. 6,256,821 to Boyd. *See* '935 Prosecution History, Office Action at 2 (Apr. 9, 2014). In response, the applicant amended pending claim 14 to add “wherein the insert does not entirely fill the channel.” '935 Prosecution History, Amendment at 3 (Jul. 2, 2014). The applicant stated that “[s]upport for the amendment to claims 1 and 14 can be found in at least FIG. 2 and the related description in the specification” (which I discussed above). *Id.* at 5. In its remarks, the applicant argued:

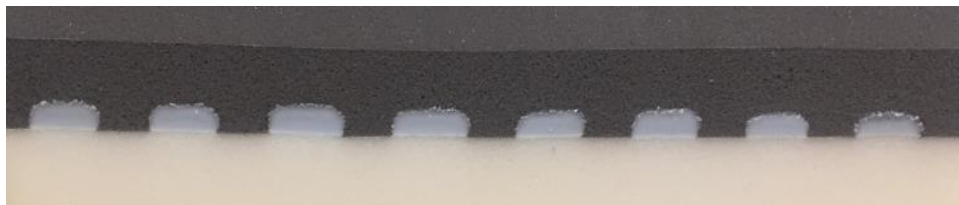
A prima facie case of obviousness has not been established because there is no teaching or suggestion of the claimed mattress and method of manufacturing a mattress. For example, the cited references fail to teach or even suggest the feature wherein the insert having planar top and bottom surfaces does not entirely fill the channel. Murphy admittedly discloses a foam body having essentially rectangular recesses and block bodies disposed therein. However, there is no disclosure or suggestion that the block bodies do not entirely fill the rectangular recess. *In*

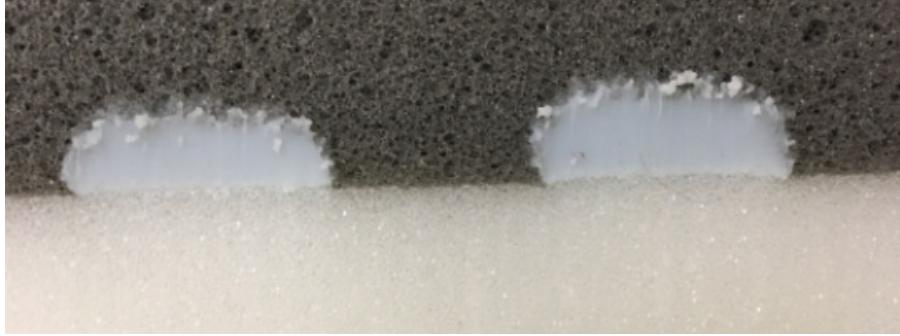
*Murphy's FIG. 1, the block bodies are shown completely filling the rectangular recess as evidenced by the coplanar surface of the block body and the foam body.*

*Id.* at 6 (emphasis added). In other words, in distinguishing Murphy from the claimed “insert does not entirely fill the channel,” the applicant pointed only to the “the coplanar surface of the block body and the foam body.” The applicant **did not** discuss whether the insert filled the channel laterally. In fact, as seen below, Murphy discloses recesses (8) filled with several inserts (14 and 16, referred to as “block bodies”), no single one of which “entirely fill[s] the channel.” Unless the phrase “insert does not entirely fill the channel” refers only to filling the depth of the channel, the inserts (block bodies) and channels (recesses) in Murphy would have anticipated this limitation.



78. Thus, a person of ordinary skill in the art would understand the claim language “insert does not entirely fill the channel” to refer to whether the insert fills the channel to the channel surface. Under this correct understanding, the Casper Wave does not infringe claim 10 of the '935 patent. Specifically, as seen below, the Polymer Network (white) on the bottom of the High Resiliency Foam layer (dark gray) fills the entire depth of the groove and its bottom is “coplanar” with the bottom surface of the High Resiliency Foam layer, just like the inserts in Murphy that Dreamwell argued “completely fill[] the rectangular recess.”





79. Mr. Clift testified in his deposition that the accused “insert” in the sample of the Casper Wave he received “fills the depth of the channel.” Clift Dep. Tr. at 37:6–13. Mr. Clift also admitted as much when he stated, with respect to claim 6 of the ’763 patent, that “the inserts of the Casper Wave mattress are substantially flush with the bottom surface of the High Resiliency Foam layer.” Clift Decl. ¶ 78.

80. Because the Polymer Network fills the entire channels within the meaning of this claim, the manufacture of the Casper Wave does not include an “insert [that] does not entirely fill the channel,” and thus does not infringe claim 10 of the ’935 patent.

**5. The manufacture of the Casper Wave does not include “affixing [an] insert having planar top and bottom surfaces”**

81. Claim 10 of the ’935 patent requires “affixing at least one insert having planar top *and* bottom surfaces into the channel.” Mr. Clift contends that the Polymer Network (the accused “insert”) has “planar top and bottom surfaces.” Clift Decl. ¶ 111. I disagree.

82. [REDACTED]

[REDACTED]

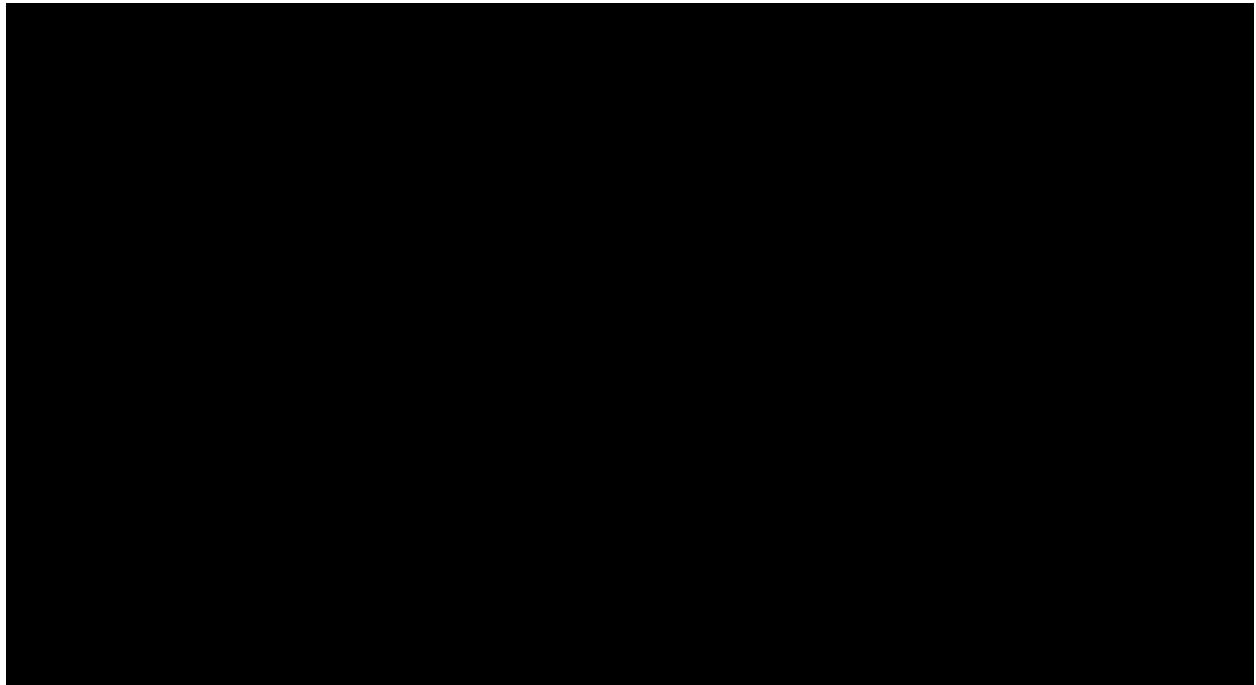
[REDACTED]

[REDACTED]

[REDACTED] The top surface is rugged and uneven.

This can be seen in the images below, [REDACTED]

[REDACTED]



6. The manufacture of the Casper Wave does not include “inserts compris[ing] a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof”

83. Claim 12 of the '935 patent requires that “the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof.” Mr. Clift contends that the Polymer Network comprises foam. Clift Decl. ¶ 118. I disagree.

84. [REDACTED]

[REDACTED] Mr. Clift testified that “[a] foam, kind of at its highest level, is a material that is formed using gas injected into a liquid.” Clift Dep. Tr.

at 27:10–13. He further explained that it is “a very porous material,” and that one way to determine whether a substance is a “foam” is to examine whether or not it has “pores,” which are characteristic of a foam. *See* Clift Dep. Tr. at 27:17–28:5. *Id.* at 27:17–18.

85. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

87. Mr. Clift has not shown that the Polymer Network of the Casper Wave is a foam.

\* \* \*

88. For at least the above reasons, it is my opinion that the Casper Wave does not infringe any of the Asserted Claims.

### **VIII. THE ASSERTED PATENTS ARE INVALID**

89. The idea of selectively varying the firmness of a mattress over its surface by forming channels and affixing inserts into the channels was known and practiced in the prior art for decades before the Asserted Patents. Below I provide a summary of the state of the art at the time of the Asserted Patents, including a discussion of the vast realm of prior art disclosing channels and inserts in mattress. I then focus on several specific references that anticipate and/or render obvious the Asserted Claims, both under the correct interpretation of the claims, as well as

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under the incorrect interpretation of the claims that Mr. Clift advances to allege infringement against the Casper Wave.

90. The following is a summary of the references that I show anticipate and/or render obvious the Asserted Claims:

<b>Invalidity References Under the Correct Claim Constructions</b>	
<b>Reference</b>	<b>Anticipates and/or Renders Obvious</b>
Kennaway	'763 patent (all claims)
GB '433	'763 patent (all claims)
Scheuch	'173 patent (all claims)
	'935 patent (all claims)

<b>Additional Invalidity References Under Mr. Clift’s Incorrect Claim Constructions</b>	
<b>Reference</b>	<b>Anticipates and/or Renders Obvious</b>
Antinori	'763 patent (all claims)
	'173 patent (all claims)
	'935 patent (all claims)
Regan	'763 patent (all claims)
	'173 patent (all claims)
	'935 patent (all claims)

**A. State of the Art**

91. Mr. Clift offers the following explanation of the alleged improvements in the Asserted Patents over the prior art:

Prior to the innovations described in the Asserted Patents, foam mattresses were commonly made of homogenous foam. Such mattresses suffered from the disadvantage that they did not distribute localized forces well, resulting in more-than-desired deflection (i.e. sinking-in) in regions of greater localized force or weight.

Traditional foam mattresses also had uniform mechanical characteristics over the length of the mattress and were thus poorly adapted to the non-uniform shape and weight distribution of the human body.

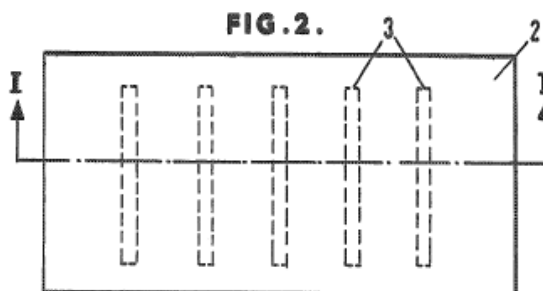
The Asserted Patents address the shortcomings of the prior art by providing foam mattresses with non-uniform mechanical characteristics (e.g., firmness, support,

etc.). The specification teaches that this non-uniformity can be accomplished by forming channels in a body of foam that makes up the mattress and affixing within those channels inserts that have a different mechanical characteristic from the surrounding foam.

Clift Decl. ¶¶ 26–28 (internal citations omitted).

92. The allegedly innovative feature of the Asserted Patents—*i.e.*, achieving non-uniform mechanical characteristics by forming channels and affixing inserts into the channels that have different mechanical characteristics from the surrounding foam—was known and practiced in the prior art for decades before the Asserted Patents. While in no way intended to be exhaustive, below I describe several background prior art references that taught using channels and inserts in mattresses well before the Asserted Patents, beginning all the way back in the 1960s:<sup>4</sup>

- **CH 407451 (Georges).** Georges, published on August 31, 1966, discloses reinforcing the body of a mattress by inserting rigid slats (3) into slots (5) on the side of the mattress.

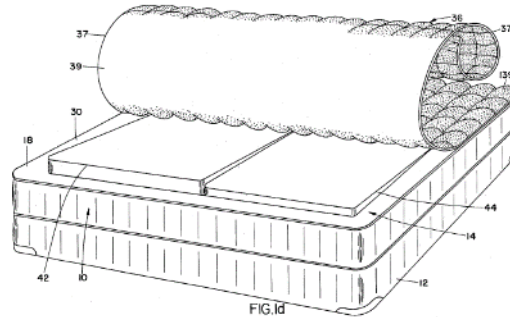


- **U.S. Patent No. 4,449,261 (Magnusson).** Magnusson, which issued on May 22, 1984, is assigned to Simmons U.S.A. Corp. (a predecessor to Plaintiff Serta Simmons Bedding) and names as inventor Robert A. Magnusson, who was President of Simmons U.S.A. at the time and later became CEO. Magnusson

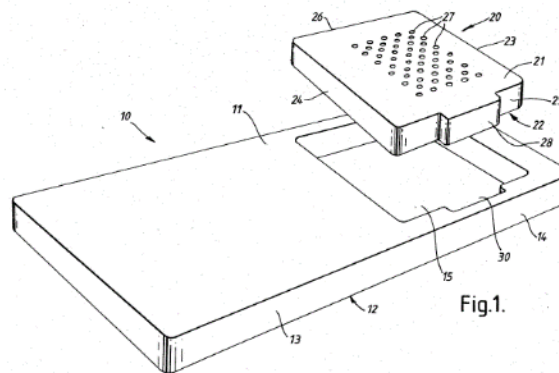
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<sup>4</sup> I do not provide any opinions on whether the background prior art identified in this list anticipates and/or renders obvious any of the Asserted Claims. I reserve the right to offer such opinions in the future after I conduct additional analysis of the prior art.

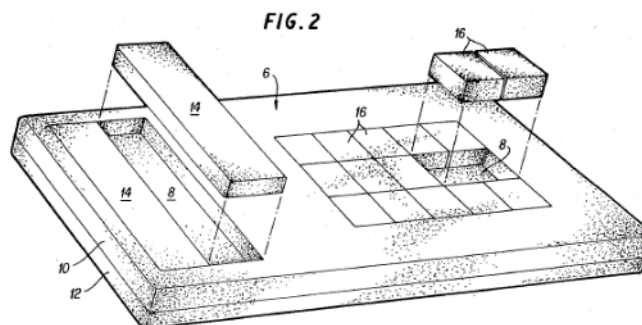
discloses a mattress with a recess or cavity (*i.e.*, channel) that can receive different foam mattress cores (*i.e.*, inserts) to “adapt[] the mattress’s firmness to allow two people, having different predispositions in regard to firmness, to sleep on the same bed.” See Magnusson at 8:33–57, Fig. 1d.



- **U.S. Patent No. 4,536,906 (Varndell).** Varndell, which issued on August 27, 1985, discloses a mattress with “a removable foam insert which fits in an aperture cut in the head portion of a foam mattress body.” Varndell at Abstract.



- **U.S. Patent No. 4,706,313 (Murphy).** Murphy, which issued on November 17, 1987, discloses a foam mattress “having recesses at positions corresponding to the locations of protruding portions of a patient.” Murphy at Abstract. The user can selectively place foam blocks (*e.g.*, block bodies 14 and 16) in the recesses. *Id.*





- **DE 3937214 A1 (Kuehnegger).** Kuehnegger, published on May 16, 1991, discloses a therapeutic mattress with channels that receive inserts of varying elasticity to “form[] a pattern with locally different resistance values for the person reclining thereon.” Kuehnegger at cl. 1.

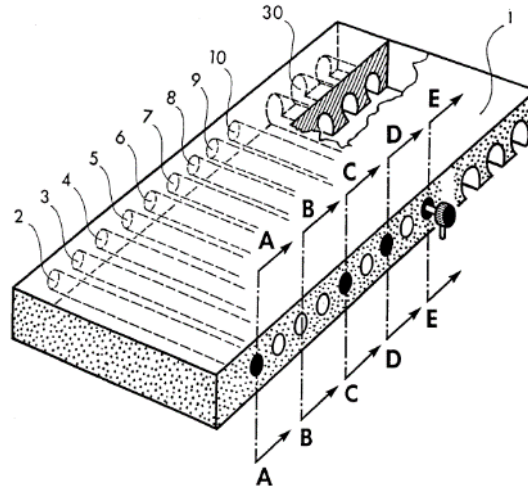
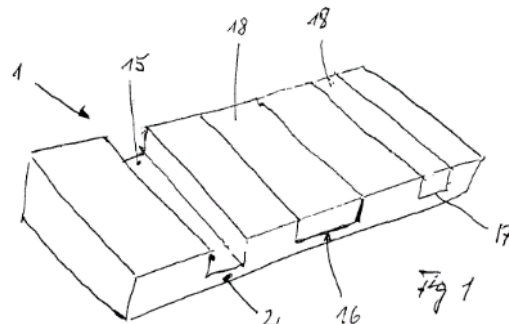
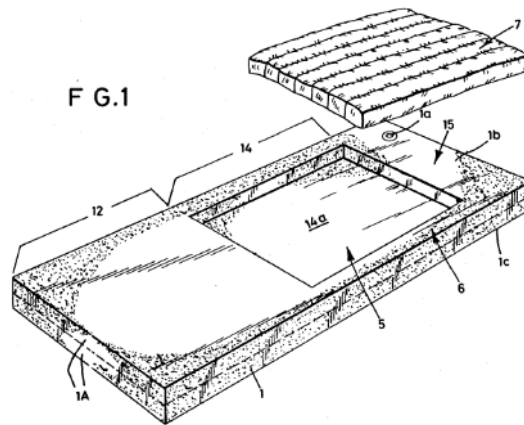


Fig.1

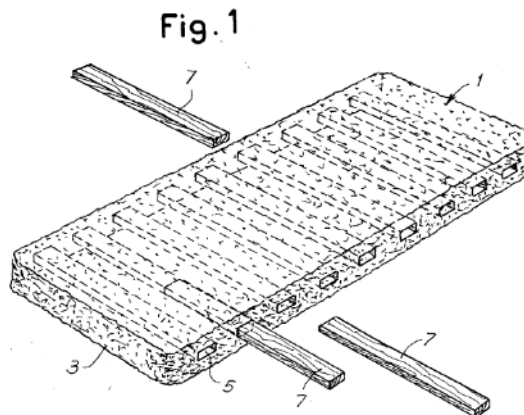
- **DE 4136369 A1 (Feldmann).** Feldmann, published on November 5, 1991, teaches forming depressions (e.g., 15, 16, and 17) in a foam mattress that are filled with foams of different hardnesses.



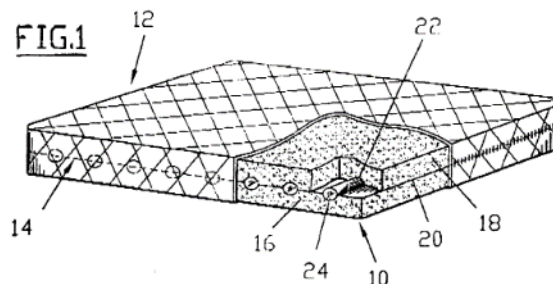
- **U.S. Patent No. 5,107,558 (Lück).** Lück, which issued on April 28, 1992, describes a foam mattress that supports a person’s torso “by a rectangular insert 7 which is removably receivable in a complementary socket or recess 5 provided in the upper side 1b and extending into the intermediate portion 14. The length of the recess 5 and insert 7 preferably at least matches the full length of the spinal column of the occupant.” Lück at 4:44–51. The insert 7 can be tailored to individual preference to be either harder or softer than the surrounding foam. *Id.* at 5:63–6:2.



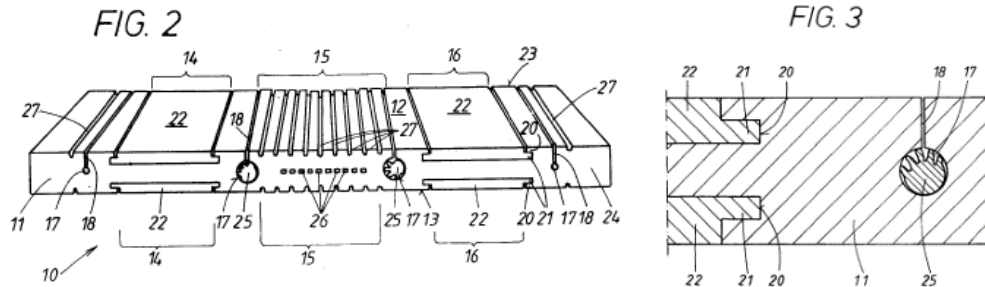
- **EP 0637426 A2 (Banchi).** Banchi, published February 8, 1995, describes a multi-layer mattress with at least one layer “crossed by transverse straight channels (5).” Banchi at 2:47–48. “Elements (7) may be inserted at any time within at least some of such channels.” *Id.* at 2:50–51. The elements can have “various transverse bending and compression characteristics.” *Id.* at 3:5–7.



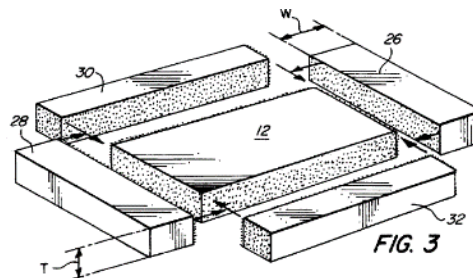
- **FR 2720245 A1 (Lambert).** Lambert, published December 1, 1995, describes a two-layer foam mattress with transverse channels (22) between the two layers that receive stiffening foam inserts (24). The inserts all the stiffness of the bed to be adjusted according to user preference.



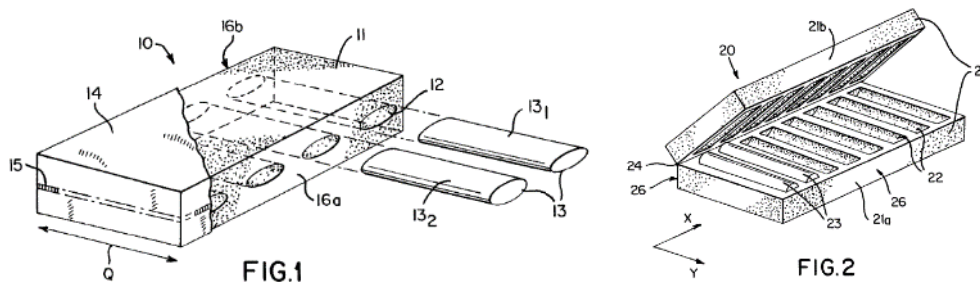
- **EP 0782830 A1 (Peinsipp).** Peinsipp, published on January 4, 1997, describes a foam mattress with multiple channels and inserts. For example, as seen in Figures 2 and 3 below, foam inserts 22 fill in channels cut in the surface of the mattress. Furthermore, at least two transverse channels (17) are also provided through the mattress, which are filled with reinforcing inserts (25).



- **U.S. Patent No. 5,701,623 (May).** May, which issued on December 30, 1997, describes a mattress formed by assembling several rectangular foam pieces. May describes an embodiment in which border sections (*i.e.*, 26, 28, 30, and 32) are adhered together to form a border (which would have a channel in the center). *See* May at 6:30–36. A core (*e.g.*, core 12) is then adhered in the center (*i.e.*, channel) of the foam border. *Id.* at 6:37–39. The core and border have different hardnesses.



- **U.S. Patent No. 6,061,856 (Hoffmann).** Hoffmann, which issued on May 16, 2000, discloses a mattress “with at least two cylindrical cavities [*i.e.*, channels 12 (Fig. 1) or 22 (Fig. 2)] that extend in a transverse direction of the mattress.” Hoffmann at 1:45–48. The channels receive “approximately cylindrical inserts” (*e.g.*, inserts 13 (Fig. 1) or 23 (Fig. 2)) that “have different degrees of hardness.” *Id.* at 1:48–50.



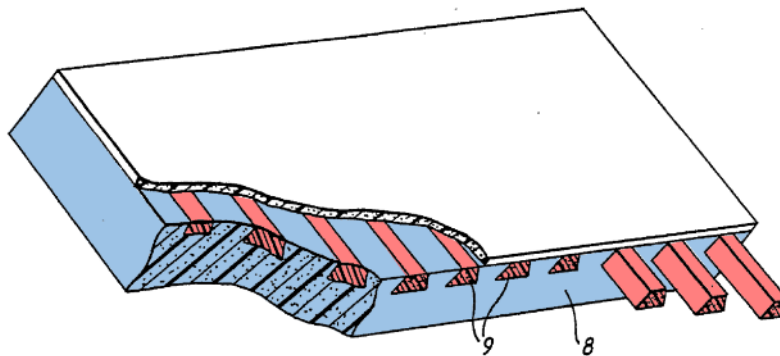
**B. The Asserted Claims Are Invalid Under the Correct Claim Interpretation**

93. The following references anticipate and/or render obvious one or more of the Asserted Claims under the correct claim constructions.

**1. International Publication No. WO 81/02384 (Kennaway)**

94. International Publication No. WO 81/02384 to Alexander Kennaway et al. (“Kennaway”) is titled “Mattress.” Kennaway was filed on February 19, 1981, and published on September 3, 1981. Kennaway is prior art to the Asserted Patents under 35 U.S.C. § 102(b). Kennaway describes a mattress with “a foam interior comprising a number of interchangeable foam blocks of different hardnesses.” Kennaway at Abstract. Kennaway describes the embodiment shown in Figure 4 (below) as follows:

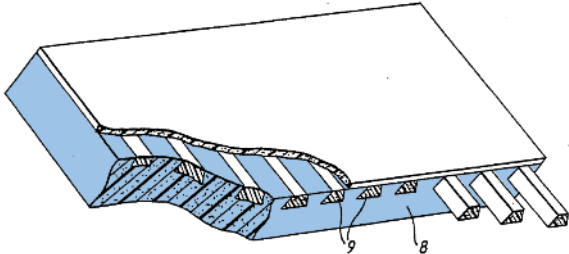
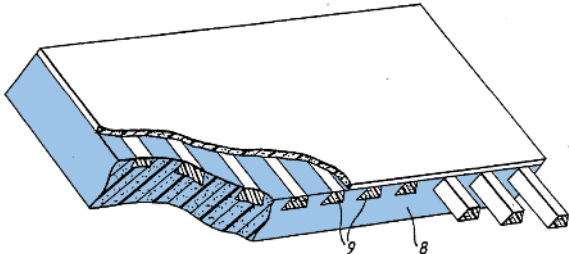
[A] mattress in accordance with the invention may comprise a main body of foam having several voids which are filled by foam insert sections of different hardnesses. . . . The mattress interior shown in Fig. 4 has a main foam section 8 with a series of parallel transversely extending channel voids filled by corresponding shaped removable elongate insert sections 9 of a different hardness or hardnesses. In Figure 4, three of the insert sections are shown partly removed.

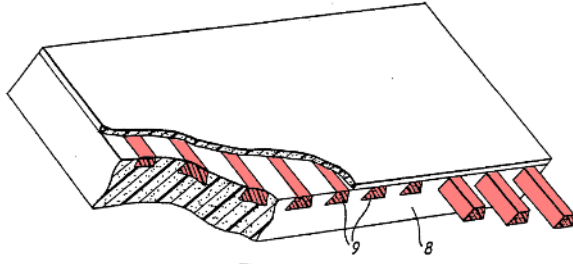
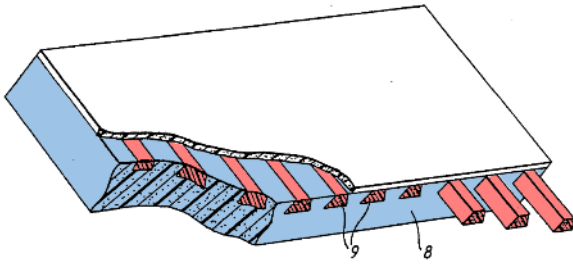


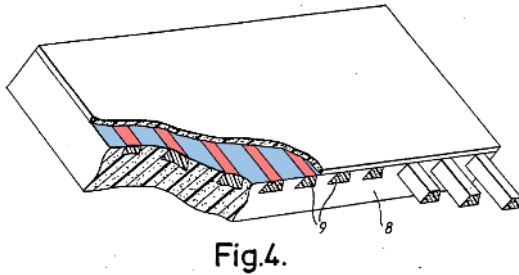
**Fig.4.**

95. As described in the claim chart below, Kennaway anticipates claims 1, 4, 6, and 7 of the '763 patent (or, in the alternative, renders those claims obvious).

- a. Kennaway anticipates (or, in the alternative, renders obvious) claims 1, 4, 6, and 7 of the ’763 patent

Kennaway – ’763 Patent Claim Chart	
[1.Pre] A mattress comprising:	Kennaway describes a mattress of adjustable resilience. Kennaway at 2:19–21, 6:19–22.
[1.1a] a body made of foam having a mechanical characteristic,	<p>The mattress comprises “a main body of foam,” <i>i.e.</i>, “main foam section 8.” Kennaway at 6:19–28.</p>  <p>Fig.4.</p>
[1.1b] the body having a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces,	As a rectangular prism, as seen in Fig. 4, main foam section 8 has a top surface, bottom surface, a first and second side surfaces and a first and second end surfaces. Kennaway at Fig. 4.
[1.1c] at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom; and	<p>The top surface of main foam section 8 has “a series of parallel transversely extending channel voids.” Kennaway at 6:24–28.</p>  <p>Fig.4.</p>
[1.2a] a plurality of inserts,	The mattress includes “removable elongate insert sections 9.” Kennaway at 6:24–28.

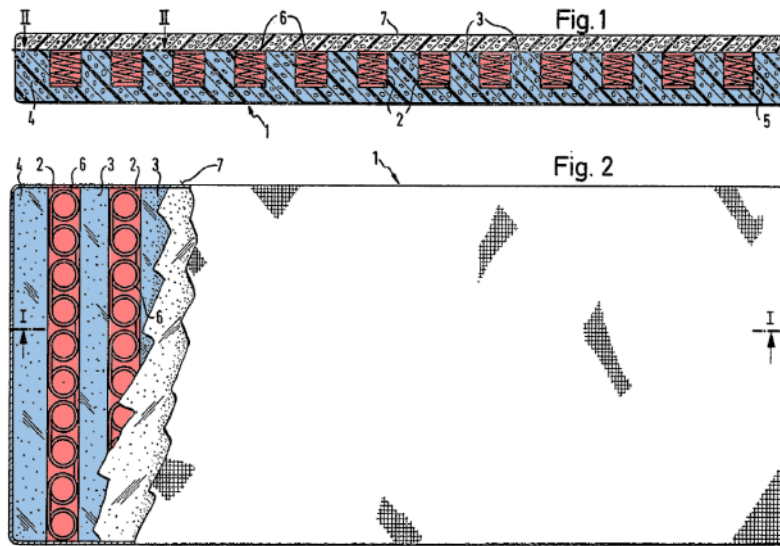
Kennaway – ’763 Patent Claim Chart	
	 <p>Fig. 4.</p>
[1.2b] each insert having a mechanical characteristic different from the mechanical characteristic of the foam and	The insert sections 9 have “different hardness or hardnesses.” Kennaway at 6:24–28.
[1.2c] affixed within one of the plurality of channels,	<p>The mattress “has a main foam section 8 with a series of parallel transversely extending channel voids filled by corresponding shaped removable elongate insert sections 9.” Kennaway at 6:24–28.</p>  <p>Fig. 4.</p>
[1.2d] each insert reinforcing the body.	The insert sections 9 have “different hardness or hardnesses” to reinforce the body. Kennaway explains that the voids ( <i>i.e.</i> , channels) are “filled by corresponding shaped removable elongated inserts sections 9 of a different hardness or hardnesses.” Kennaway at 6:26–29. Inserts that “fill[]” a channel and are “corresponding[ly] shaped” to the channel will help reinforce the body. Figures 2a, 2b, 2c & 3 show some possible arrangements of inserts to reinforce the body.
[4.Pre] The mattress of claim 1 further comprising	See Claim 1, above.
[4.1a] a material that covers at least one of the channels,	The mattress has an “upper soft foam layer” covering the channels. Kennaway at 5:2–3. Kennaway also discloses a “cover” that is “removable to allow foam sections to be replaced thereby to alter the hardness characteristics of the mattress.” <i>Id.</i> at 2:26–28.

<b>Kennaway – ’763 Patent Claim Chart</b>	
<b>[4.1b]</b> the material securing at least one of the inserts within one of the channels.	The “upper soft foam layer” and cover secure at least one of the inserts within one of the channels. The cover, for example, “fits closely around the internal foam body,” thus securing the inserts in the channel. Kennaway at 2:26–28, 3:7–9.
<b>[6.Pre]</b> The mattress of claim 1, wherein	<i>See Claim 1, above.</i>
<b>[6.1]</b> at least one of the insert is substantially flush with the at least one of the top and bottom surfaces.	<p>The tops of the insert sections 9 are substantially flush with the top surface of the main foam section 8.</p>  <p style="text-align: center;"><b>Fig.4.</b></p>
<b>[7.Pre]</b> The mattress of claim 1, wherein	<i>See Claim 1, above.</i>
<b>[7.1]</b> each channel extends to an opening in at least one of the surfaces adjacent to the channel surface.	Main foam section 8 has “a series of parallel transversely extending channel voids,” which extend to an opening on the side of the mattress. Kennaway at 6:24–28.

## 2. Great Britain Patent Specification No. 1 483 433 (GB ’433)

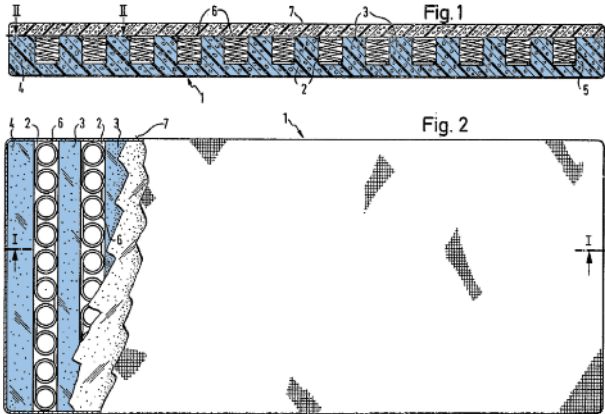
96. Great Britain Patent Specification No. 1 483 433 (“GB ’433”) is titled “Improvements in or Relating to Mattresses and the Like.” GB ’433 was filed on September 5, 1974, and published on August 17, 1977. GB ’433 is prior art to the Asserted Patents under 35 U.S.C. § 102(b). GB ’433 describes “mattresses of which a major part is formed from a foamed polymeric material.” GB ’433 at 1:10–14. As seen below, the mattress has a “body of foamed polymeric material [with] a plurality of cut-out parallel channels extending . . . over the entire width[] of the body.” *Id.* at 1:96–2:5. “[T]here are continuous spring elements inserted into the channels in the foam . . . .” *Id.* at 2:85–88.



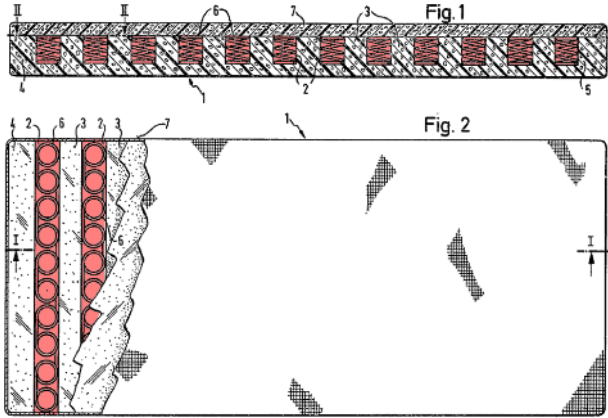


97. As described in the claim chart below, GB '433 anticipates claims 1, 4, 6, and 7 of the '763 patent (or, in the alternative, renders those claims obvious).

- a. GB '433 anticipates (or, in the alternative, renders obvious) claims 1, 4, 6, and 7 of the '763 patent

GB '433 – '763 Patent Claim Chart	
[1.Pre] A mattress comprising:	GB '433 describes “a mattress.” GB '433 at 1:63–79.
[1.1a] a body made of foam having a mechanical characteristic,	<p>The mattress has a “body of foamed polymeric material,” labeled as “underbody 1” in the figures. GB '433 at 1:96–2:5.</p>  <p><i>See also:</i></p>



GB '433 – '763 Patent Claim Chart	
	<p>“The drawings show a mattress underbody 1 which may be manufactured from a so-called hot foam, such as a polyether, or from a cold foam, such as a polyurethane. The mattress underbody 1 has a number of channels 2 extending transversely of the length of the mattress and arranged parallel to each other.” [3:24–31]</p>
<b>[1.1b]</b> the body having a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces,	<p>As a rectangular prism, as seen in the figures, the underbody 1 has a top surface, bottom surface, a first and second side surfaces and a first and second end surfaces. Kennaway at Figs. 1 &amp; 2.</p>
<b>[1.1c]</b> at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom; and	<p>The top surface of underbody 1 “has a number of channels 2 extending transversely of the length of the mattress and arranged parallel to each other.” GB '433 at 3:24–31.</p>  <p>Fig. 1 is a cross-sectional view of a mattress underbody 1 showing a series of parallel channels 2. The channels are formed by webs 3 of the polymeric material. The underbody has a top surface 4 and a bottom surface 5. The channels are separated by webs 3. The underbody is shown with a plurality of channels 2 extending transversely of the length of the mattress. Fig. 2 is a top-down view of the mattress underbody 1 showing the channels 2 and the webs 3. The underbody is shown with a plurality of channels 2 extending transversely of the length of the mattress. The channels are separated by webs 3. The underbody is shown with a plurality of channels 2 extending transversely of the length of the mattress.</p> <p><i>See also:</i></p> <p>“The body of foamed polymeric material has a plurality of cut-out parallel channels extending over the entire length, or preferably over the entire width, of the body and separated from each other by webs of the polymeric material.” [1:96–2:5]</p>
<b>[1.2a]</b> a plurality of inserts,	<p>The mattress includes several “continuous wire spring elements 6.” GB '433 at 3:69–74.</p> <p><i>See also:</i></p>

GB ’433 – ’763 Patent Claim Chart	
	<p>“[T]here are continuous spring elements inserted into the channels in the foam which spring elements are held on two sides by the fixed foam webs.” [2:85–88]</p>
[1.2b] each insert having a mechanical characteristic different from the mechanical characteristic of the foam and	<p>The spring elements 6 are made of wire (<i>i.e.</i>, metal), and thus have a different mechanical characteristic from the mechanical characteristic of the foam. GB ’433 at 3:69–74.</p>
[1.2c] affixed within one of the plurality of channels,	<p>“[I]nto the channels of the foam mattress underbody 1 thus produced there are inserted continuous wire spring elements 6 . . . .” GB ’433 at 3:69–74.</p> <div data-bbox="717 707 1317 1119" data-label="Image"> </div> <p><i>See also:</i></p> <p>“According to the present invention there is provided a mattress or the like comprising a body of foamed polymeric material provided in one face thereof with a plurality of substantially parallel channels separated by webs therebetween, each said channel running completely across the width or the length of said body, being open at each end, and having a depth taking up a major portion of the thickness of said body . . . and a plurality of springs which lie adjacent one another within each said channel . . . .” [1:63–79]</p> <p>“[T]here are continuous spring elements inserted into the channels in the foam which spring elements are held on two sides by the fixed foam webs.” [2:85–88]</p>
[1.2d] each insert reinforcing the body.	<p>The spring elements, because they are metal and are flush with the channel base, padding layer, and side walls (webs), reinforce the body. GB ’433 at 2:68–74.</p>

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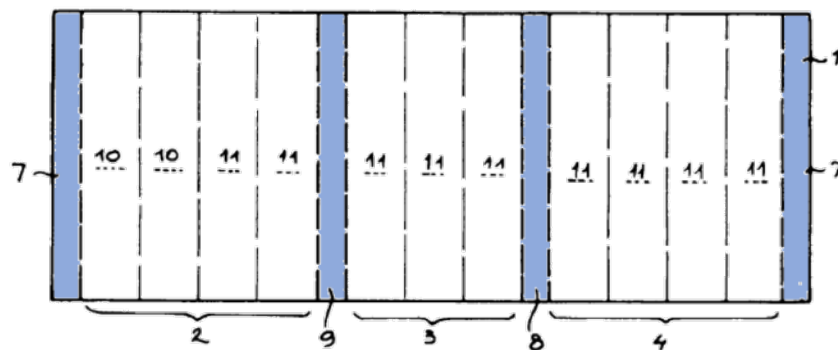
<b>GB ’433 – ’763 Patent Claim Chart</b>	
<b>[4.Pre]</b> The mattress of claim 1 further comprising	<i>See Claim 1, above.</i>
<b>[4.1a]</b> a material that covers at least one of the channels,	<p>Both a “padding layer 7” and “stitched cellulose cloth” cover at least one of the channels. GB ’433 at 3:77–83, 3:95–100.</p> <p><i>See also:</i></p> <p>“On one side the individual springs rest on the base of the channel and on the other side against a padding layer 7 of foam secured to the upper side of the underbody without exerting substantial force on either the base or the padding layer.” [3:77–83]</p> <p>“To cover the openings of the channels along the longitudinal sides of the mattress, there may be provided a layer of stitched cellulose cloth with an intermediate layer of foam and a covering material disposed over that layer.” [3:95–100]</p>
<b>[4.1b]</b> the material securing at least one of the inserts within one of the channels.	<p>These materials secure the spring elements within the channels. GB ’433 at 3:77–83, 3:95–100.</p> <p><i>See also:</i></p> <p>“On one side the individual springs rest on the base of the channel and on the other side against a padding layer 7 of foam secured to the upper side of the underbody without exerting substantial force on either the base or the padding layer.” [3:77–83]</p> <p>“To cover the openings of the channels along the longitudinal sides of the mattress, there may be provided a layer of stitched cellulose cloth with an intermediate layer of foam and a covering material disposed over that layer.” [3:95–100]</p>
<b>[6.Pre]</b> The mattress of claim 1, wherein	<i>See Claim 1, above.</i>
<b>[6.1]</b> at least one of the insert is substantially flush with the at least one of the top and bottom surfaces.	The tops of the spring elements 6 are substantially flush with the top surface of underbody 1. GB ’433 at Fig. 1.

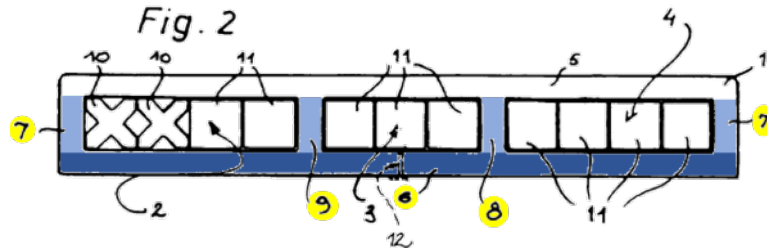
GB '433 – '763 Patent Claim Chart	
[7.Pre] The mattress of claim 1, wherein	See Claim 1, above.
[7.1] each channel extends to an opening in at least one of the surfaces adjacent to the channel surface.	The channels run “preferably in a direction transverse to the length of the mattress and which are open at each end, i.e. on both longitudinal sides of the mattress.” GB '433 at 2:43–47.

### 3. European Patent Publication No. 1031302A2 (Scheuch)

98. European Patent Publication No. 1031302A2 to Mario Scheuch (“Scheuch”) is titled “Mattress.” Scheuch was filed on February 22, 2000, and published on August 30, 2000. Scheuch is prior art to the Asserted Patents under 35 U.S.C. § 102(b). Scheuch describes “[a] mattress having a multi-part core of elastic material, in particular a foam core, . . . having one or more recesses in the horizontal central region of the longitudinal section as well as having inserts or insets provided transverse to the lying direction in the recess or the recesses for locally changing the elastic properties of the mattress.” Scheuch ¶ [0001]. This allows for “different levels of hardness” across the mattress, including “adaptation of the hardness or elasticity in the head, shoulder, back and pelvic regions.” *Id.* ¶ [0006].

Fig. 1





99. The mattress in Scheuch can be formed by assembling rectangular foam pieces (in color above). *Id.* ¶ [0025]. Scheuch explains, for example, that “foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” *Id.* The different foam pieces that are used to assemble the mattress and form the channels are colored and highlighted in the figure above.

100. As described in the claim charts below, Scheuch:

- Anticipates claims 5 and 6 of the ’173 patent (or, in the alternative, renders those claims obvious); and
  - Anticipates claims 10 and 12 of the ’935 patent (or, in the alternative, renders those claims obvious).
- a. **Scheuch anticipates (or, in the alternative, renders obvious) claims 5 and 6 of the ’173 patent**

Scheuch – ’173 Patent Claim Chart	
<b>[5.Pre]</b> A method of manufacturing a mattress comprising:	<p>Scheuch describes the “manufacture” of a mattress. [0025]</p> <p><i>See also:</i></p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
<b>[5.1]</b> providing a body made of foam shaped and sized for use as a mattress;	<p>Scheuch describes providing a body made of foam (<i>i.e.</i>, foam core 1) shaped and sized for use as a mattress. [0025]</p>

Scheuch – '173 Patent Claim Chart

Fig. 1

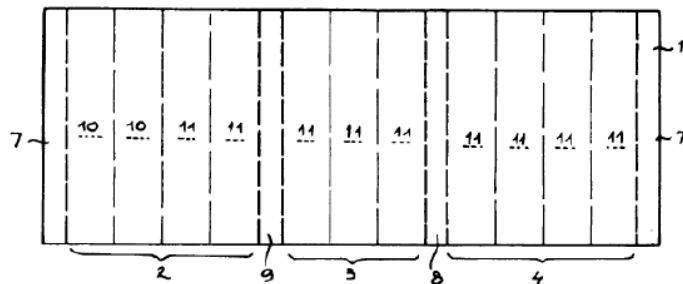
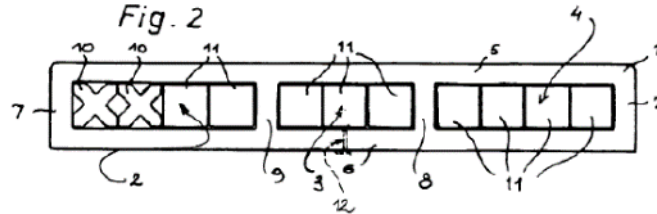


Fig. 2



See also:

“This is achieved by a mattress of the type described at the outset in that the inserts or insets extend over the entire width of the mattress and that the core, in particular the foam core, has a cover layer and a base layer as peripheral layers, which are kept at a distance from one another by webs, which are preferably glued in, wherein the hollow intermediate spaces form the recess or the recesses for the inserts.” [0009]

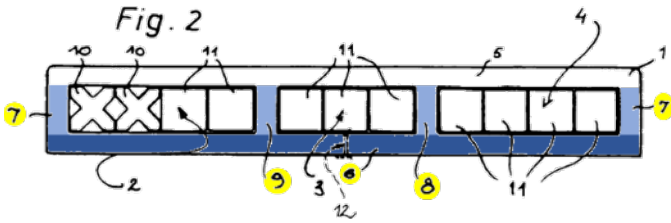
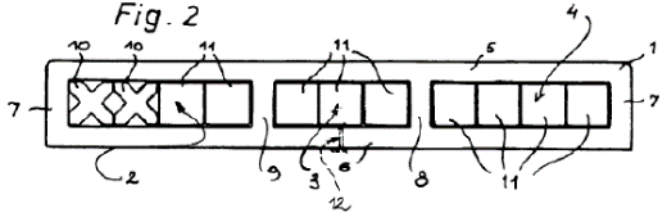
“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]

[5.2] locating a region of the body where increased support is desired;

Scheuch teaches “adaptation of the hardness or elasticity” in various regions—*i.e.*, locating a region of the body where increased support is desired. [0006]

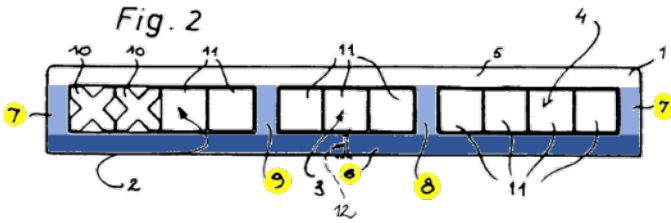
See also:

“The insets can have different levels of hardness; as a result, an individual adaptation of the hardness or elasticity in the head, shoulder, back and pelvic regions is possible, such as is

Scheuch – ’173 Patent Claim Chart	
	<p>the case for instance with orthopedic loungers because of medically shaped supports.” [0006]</p> <p>“A color code can be used to provide inserts for example in three degrees of hardness, which can be selectively introduced or inserted in accordance with an orthopedist’s recommendation for instance.” [0010]</p>
<p><b>[5.3]</b> forming a channel into the body within the region; and</p>	<p>Scheuch teaches forming a channel (<i>e.g.</i>, recess 3) into the body within the region by gluing webs 7, 8, and 9 between foam cover layer 5 and base layer 6. [0025]</p>  <p><i>See also:</i></p> <p>“A mattress having a core of elastic material, in particular a foam core (1) has, as viewed in a longitudinal section, continuous recesses (2, 3, 4) transverse to the lying direction, which are filled with replaceable inserts (10, 11) or inserts that are very close together, as the case may be, made of materials of different hardness and elasticity.” [Abstract]</p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
<p><b>[5.4a]</b> affixing an insert into the channel</p>	<p>Scheuch teaches affixing an insert (<i>e.g.</i>, insert 11) into the channel. [0025]</p> 

Scheuch – ’173 Patent Claim Chart	
	<p><i>See also:</i></p> <p>“Inserts 10, 11 in the form of cuboid, prismatic or similar blocks that are likewise produced from foam can be inserted from the side into said recesses 2, 3, 4. The inserts 10, 11 can have different mechanical properties (e.g., hardness, elasticity). They can be individually removed and cleaned, and, by using a selective arrangement of inserts 10, 11 with different levels of hardness, it is possible to adjust the mattress correspondingly in terms of its entire length and width without intermediate spaces or even zone-by-zone to requirements or to subjective resting comfort.” [0025]</p>
[5.4b] the insert having a greater firmness than the body of foam;	<p>Scheuch teaches that, because the inserts can have “different levels of hardness,” the insert has a greater firmness than the body of foam. [0025]</p> <p><i>See also:</i></p> <p>“The insets can have different levels of hardness; as a result, an individual adaptation of the hardness or elasticity in the head, shoulder, back and pelvic regions is possible, such as is the case for instance with orthopedic loungers because of medically shaped supports.” [0006]</p> <p>“A color code can be used to provide inserts for example in three degrees of hardness, which can be selectively introduced or inserted in accordance with an orthopedist’s recommendation for instance.” [0010]</p> <p>“As a result, a standard mattress according to the invention offers a great many possibilities for varying the properties of the mattress. Of course, the inserts or insets can also be purchased subsequently in the desired degrees of hardness.” [0023]</p> <p>“The inserts 10, 11 can have different mechanical properties (e.g., hardness, elasticity). They can be individually removed and cleaned, and, by using a selective arrangement of inserts 10, 11 with different levels of hardness, it is possible to adjust the mattress correspondingly in terms of its entire</p>



Scheuch – ’173 Patent Claim Chart	
	length and width without intermediate spaces or even zone-by-zone to requirements or to subjective resting comfort.” [0025]
[5.5] wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel.	<p>Scheuch teaches that forming the channel comprises assembling a plurality of rectangular foam pieces (<i>e.g.</i>, cover layer 5, base layer 6, and webs 7, 8, and 9) into a mattress that includes the channel.</p>  <p><i>See also:</i></p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
[6.Pre] The method of claim 5	<i>See</i> Claim 5, above.
[6.1] wherein forming the channel further comprises cutting foam out of the body.	<p>Scheuch teaches that forming the channel further comprises cutting foam out of the body to form a “slot” on the top or bottom surface. [Abstract, 0019]</p> <p><i>See also:</i></p> <p>“Furthermore, the recesses (2, 3, 4) can have a slot towards the top or bottom, which extends at best over the entire width of the mattress.” [Abstract]</p> <p>“It is especially expedient if the cover layer and/or the base layer has an opening, in particular a slot for easier introduction or replacement of the inserts or insets. Lateral insertion is thereby facilitated, but an insertion from above is also possible.” [0019]</p>

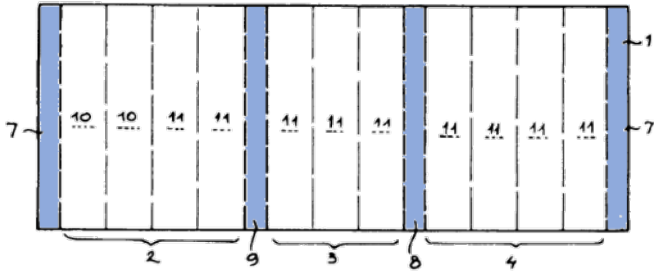
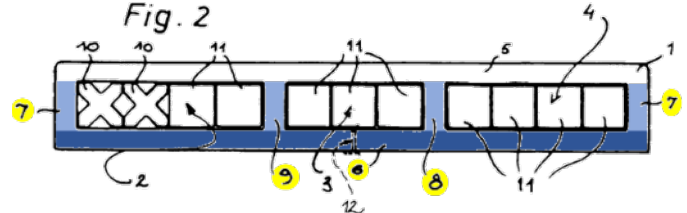
**(i) It would have been obvious to cut foam out of the body**

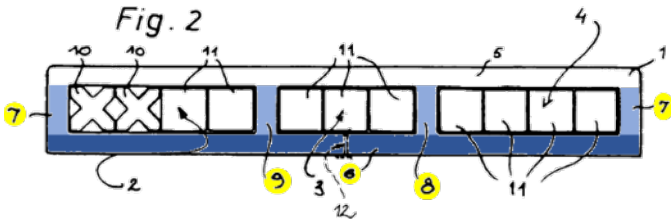
101. To the extent Scheuch does not expressly or inherently disclose using cutting in addition to assembly of rectangular blocks to form channels, that element would have been obvious in light of the knowledge of a person of ordinary skill in the art. One of the few known methods at the time of forming channels/recesses was cutting. It would have been obvious to a person of ordinary skill in the art to additionally cut foam out of the body. For example, Scheuch describes a “slot” in the cover layer and/or base layer. Scheuch at Abstract ¶ [0027]. It would have been obvious to a person of ordinary skill in the art to assemble the cover layer, base layer, and webs, and then to use cutting to form a slot in either the cover layer or base layer.

102. Indeed, during prosecution of the ’173 patent, the examiner rejected certain claims as obvious because “[t]he method of forming the channels whether by cutting or molding is an obvious matter of design choice.” ’173 Prosecution History, Office Action at 2 (Jul. 31, 2003). Dreamwell never disputed the examiner’s characterization of using cutting as “an obvious matter of design choice.” It therefore would have been obvious to a person of ordinary skill in the art to manufacture the mattress described in Scheuch by using cutting to form a slot.

**b. Scheuch anticipates (or, in the alternative, renders obvious) claims 10 and 12 of the ’935 patent**

<b>Scheuch – ’935 Patent Claim Chart</b>	
<b>[10.Pre]</b> A method of manufacturing a mattress comprising:	Scheuch describes the “manufacture” of a mattress. [0025]  <i>See also:</i>  “A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]
<b>[10.1]</b> providing a plurality of rectangular foam pieces to	Scheuch describes providing a plurality of foam pieces ( <i>i.e.</i> , cover layer 5, base layer 6, and webs 7, 8, and 9) that

Scheuch – '935 Patent Claim Chart	
<p>form a body of foam shaped and sized for use as a mattress;</p>	<p>together form a body shaped and sized for use as a mattress. [0025]</p> <p><i>Fig. 1</i></p>  <p><i>Fig. 2</i></p>  <p><i>See also:</i></p> <p>“This is achieved by a mattress of the type described at the outset in that the inserts or insets extend over the entire width of the mattress and that the core, in particular the foam core, has a cover layer and a base layer as peripheral layers, which are kept at a distance from one another by webs, which are preferably glued in, wherein the hollow intermediate spaces form the recess or the recesses for the inserts.” [0009]</p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
<p>[10.2] locating a region of the body where increased support is desired;</p>	<p>Scheuch teaches “adaptation of the hardness or elasticity” in various regions—<i>i.e.</i>, locating a region of the body where increased support is desired. [0006]</p> <p><i>See also:</i></p>

Scheuch – ’935 Patent Claim Chart	
	<p>“The insets can have different levels of hardness; as a result, an individual adaptation of the hardness or elasticity in the head, shoulder, back and pelvic regions is possible, such as is the case for instance with orthopedic loungers because of medically shaped supports.” [0006]</p> <p>“A color code can be used to provide inserts for example in three degrees of hardness, which can be selectively introduced or inserted in accordance with an orthopedist’s recommendation for instance.” [0010]</p>
<p><b>[10.3]</b> assembling the rectangular foam pieces to form the body having a channel in the region; and</p>	<p>Scheuch teaches assembling the rectangular foam pieces (<i>e.g.</i>, cover layer 5, base layer 6, and webs 7, 8, and 9) to form the body (<i>i.e.</i>, foam core 1) having a channel (<i>e.g.</i>, recess 3) in the region.</p>  <p><i>See also:</i></p> <p>“A mattress having a core of elastic material, in particular a foam core (1) has, as viewed in a longitudinal section, continuous recesses (2, 3, 4) transverse to the lying direction, which are filled with replaceable inserts (10, 11) or inserts that are very close together, as the case may be, made of materials of different hardness and elasticity.” [Abstract]</p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
<p><b>[10.4a]</b> affixing at least one insert having planar top and bottom surfaces into the channel,</p>	<p>Scheuch teaches affixing at least one insert having planar top and bottom surfaces (<i>e.g.</i>, insert 10 or 11) into the channel.</p>

Scheuch – '935 Patent Claim Chart

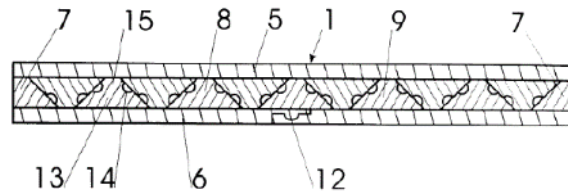
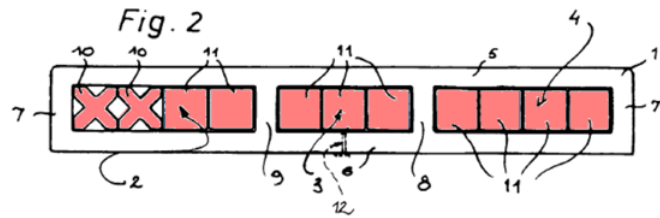


Fig. 4

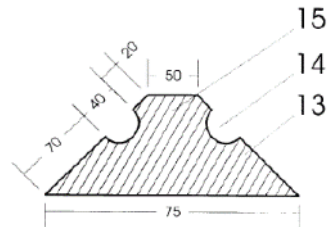


Fig. 5

*See also:*

“A preferred embodiment is characterized in that the inserts or insets have a cross-section corresponding to a substantially equilateral triangle or a substantially equilateral trapezoid and the inserts or insets are inserted in the recess or the recesses each rotated around the longitudinal axis by 180°, and that the webs are adapted to the cross-sectional shape of the inserts or insets via oblique surfaces.” [0014]

“Inserts 10, 11 in the form of cuboid, prismatic or similar blocks that are likewise produced from foam can be inserted from the side into said recesses 2, 3, 4. The inserts 10, 11 can have different mechanical properties (e.g., hardness, elasticity). They can be individually removed and cleaned, and, by using a selective arrangement of inserts 10, 11 with different levels of hardness, it is possible to adjust the mattress correspondingly in terms of its entire length and

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Scheuch – ’935 Patent Claim Chart	
	width without intermediate spaces or even zone-by-zone to requirements or to subjective resting comfort.” [0025]
[10.4b] wherein the channel has a physical shape configured to receive the at least one insert,	<p>The channel has a physical shape configured to receive the at least one insert.</p> <p><i>See also:</i></p> <p>“This is achieved by a mattress of the type described at the outset in that the inserts or insets extend over the entire width of the mattress and that the core, in particular the foam core, has a cover layer and a base layer as peripheral layers, which are kept at a distance from one another by webs, which are preferably glued in, wherein the hollow intermediate spaces form the recess or the recesses for the inserts.” [0009]</p> <p>“A foam core 1 has recesses 2, 3, 4, which are produced by forming operations during the manufacture of the core or from a structure made of a foam cover layer 5, a base layer 6 and by webs 7, 8, 9 that are glued in as intermediate spaces.” [0025]</p>
[10.4c] the insert having a different mechanical property than the body of foam,	<p>The inserts “can have different mechanical properties (e.g., hardness, elasticity).” [0025]</p> <p><i>See also:</i></p> <p>“The present invention relates to a mattress having a multi-part core of elastic material, in particular a foam core, latex core or the like, in a coating and having one or more recesses in the horizontal central region of the longitudinal section as well as having inserts or insets provided transverse to the lying direction in the recess or the recesses for locally changing the elastic properties of the mattress, wherein the inserts or insets lie directly next to each other in the recess or the recesses.” [0001]</p> <p>“Inserts 10, 11 in the form of cuboid, prismatic or similar blocks that are likewise produced from foam can be inserted from the side into said recesses 2, 3, 4. The inserts 10, 11 can have different mechanical properties (e.g., hardness, elasticity).” [0025]</p>

Scheuch – '935 Patent Claim Chart

[10.4d] and wherein the insert does not entirely fill the channel.

Scheuch teaches that the inserts do not entirely fill the channel. For example, inserts 10 do not fill the whole depth of the channel in the middle.

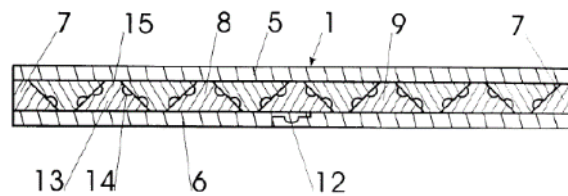
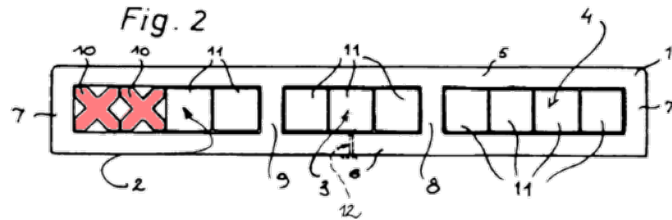


Fig. 4

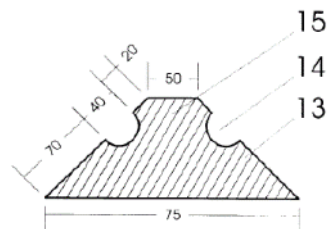


Fig. 5

See also:

“It is advantageous if at least some insert or inserts are configured to be X-shaped within a rectangular or cuboid outline. The X-shape of the cross-section gives the insert made of foam material special mechanical properties.” [0012]

“A preferred embodiment is characterized in that the inserts or inserts have a cross-section corresponding to a substantially equilateral triangle or a substantially equilateral trapezoid . . . .” [0014]

“Finally, it is favorable if the position of the inserts or inserts can be fixed in the recesses by Velcro pieces.” [0022]

<b>Scheuch – ’935 Patent Claim Chart</b>	
	“For this purpose, a channel-shaped auxiliary device with a smooth surface is used, which is extracted from the recesses 2, 3, 4 again after the inserts 10, 11 have been inserted.” [0026]
<b>[12.Pre]</b> The method of manufacturing a mattress of claim 10,	<i>See</i> Claim 10, above.
<b>[12.1]</b> wherein the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof.	Scheuch teaches that the inserts comprise foam. [0025]  “Inserts 10, 11 in the form of cuboid, prismatic or similar blocks that are likewise produced from foam can be inserted from the side into said recesses 2, 3, 4. The inserts 10, 11 can have different mechanical properties (e.g., hardness, elasticity).” [0025]

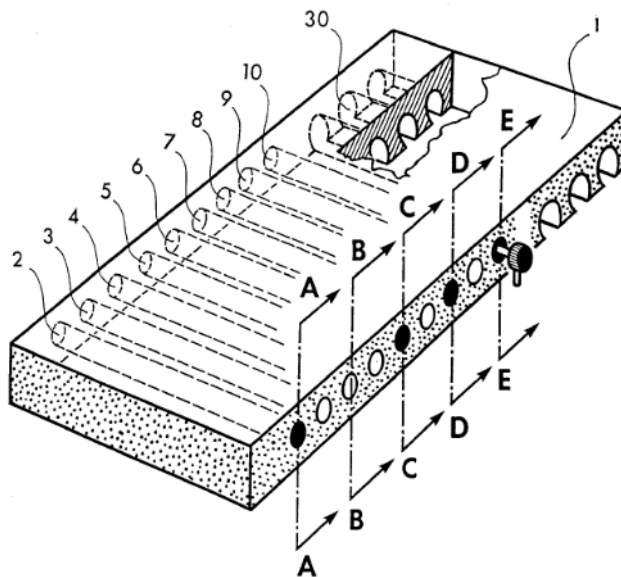
**(i) It would have been obvious for the insert to not entirely fill the channel**

103. To the extent that Scheuch does not teach that the “insert does not entirely fill the channel,” modifying the inserts in Scheuch so they do not entirely fill the recesses would be an obvious modification to a person of ordinary skill in the art. A person of ordinary skill in the art at the time would have known that filling the channels to different depths could affect the support and resiliency of the inserts. A person of ordinary skill in the art would experiment with filling the channels to different depths in order to maximize comfort and support.

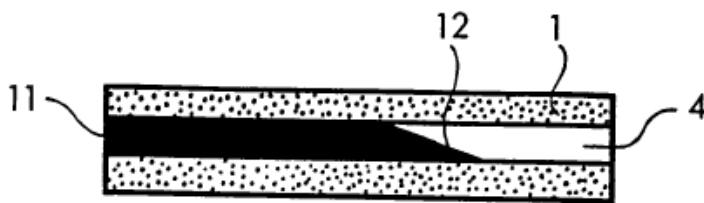
104. Configuring the insert to not entirely fill the recess was taught in, *e.g.*, in DE 3937214 A1 to Prof. Dr. Walter Kuehnegger. Kuehnegger, titled “Therapeutic mattress for patients,” was filed on November 8, 1989, and was published on May 16, 1991. As seen below in Figure 1, Kuehnegger teaches forming channels that pass through the center of the mattress. The channels receive inserts of varying elasticity to “form[] a pattern with locally different resistance values for the person reclining thereon.” Kuehnegger at cl. 1. As seen in Figures 3 and 12, Kuehnegger teaches that it can be beneficial to provide “a substantially lower resistance value” by



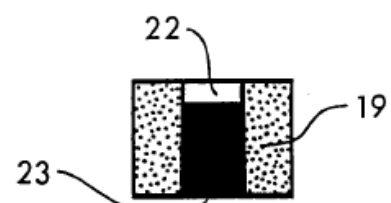
not entirely filling a channel, either along its width (Figure 3) or to its full depth (Figure 12). *See id.* at 6–8. Kuehnegger explains that channels “can be filled completely or even only partially . . . in order to produce the respective desired resistance pattern 17 on the reclining surface of the mattress part 19.” *Id.* at 8. It would have been obvious to combine the teachings of Scheuch with Kuehnegger, as both relate to mattress design and both seek to provide selective firmness over the surface of a mattress.



**Fig. 1**



**Fig. 3 Schnitt B-B**



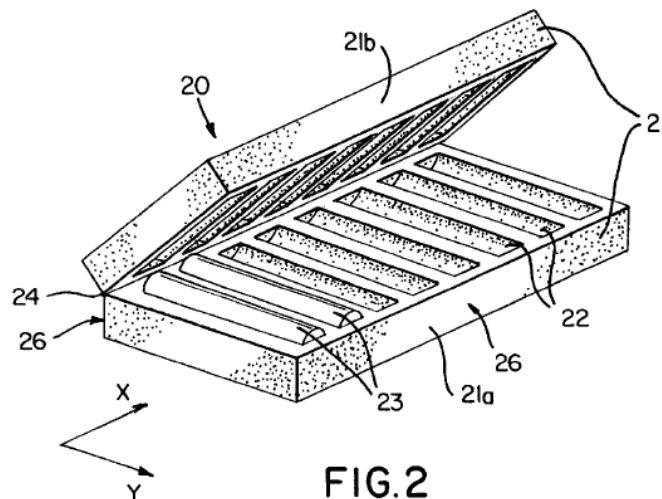
**Fig. 12 Schnitt G-G**

105. Thus, it would have been obvious in light of Scheuch itself, as well as when Scheuch is considered with Kuehnegger, for the insert to not entirely fill the channel, as required by claim 10 of the '935 patent.

### C. The Asserted Claims Are Invalid Under Mr. Clift's Incorrect Claim Interpretation

106. As explained above, Mr. Clift’s infringement allegations are inconsistent with the plain meaning of the claims, as understood in light of the specifications and prosecution histories. For example, Mr. Clift accuses channels in the *center* of the Casper Wave of infringing, despite distinguishing U.S. Patent No. 6,061,856 to Hoffmann (“Hoffmann”) because its channels are “centrally disposed,” with no channels “on the top or bottom surface of the mattress.”

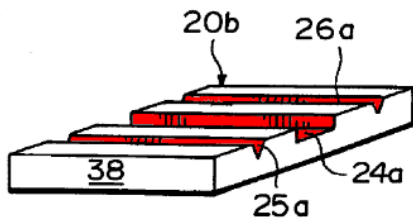
107. To the extent Mr. Clift contends that the Casper Wave’s “centrally disposed” channels infringe, the applicant’s arguments distinguishing Hoffmann disappear, and Hoffmann would anticipate at least claim 1 of the ’763 patent. For example, if the bottom half of the base (21a) were considered the “body” (just as Mr. Clift contends a single layer of the Casper Wave is a mattress “body”), the channels 22 would “extend[] into the body perpendicularly” from the top surface, as required by claim 1 of the ’763 patent.



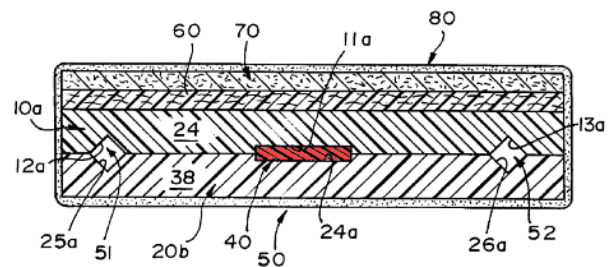
108. Under Mr. Clift's incorrect claim interpretation, several *other* prior art references, in addition to Hoffmann, would anticipate and/or render obvious the Asserted Claims. Two such additional references are discussed below.

**1. U.S. Patent No. 6,223,371 (Antinori)**

109. U.S. Patent No. 6,223,371 to Steven Antinori et al. (“Antinori”) is titled “Mattress and Method of Manufacture.” Antinori was filed on April 15, 1999, and issued on May 1, 2001. Antinori is thus prior art to the Asserted Patents under 35 U.S.C. § 102(b). Antinori describes the manufacture of a mattress with layer portions differing in Indentation Load Deflection (ILD) values. Antinori at 3:23–25. Between two layers “an insert 40 . . . having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses.” *Id.* at 4:18–22. This “firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress.” *Id.* at 4:28–31. Antinori emphasizes—well before the Asserted Patents were ever filed—that “through the utilization of one or more transverse recesses . . . postural support can be firmed in a selective fashion through the insert.” *Id.* at 5:1–6.



**Excerpt of Fig. 3 of Antinori**



**Excerpt of Fig. 4 of Antinori**

110. As described in the claim charts below, under Mr. Clift’s incorrect interpretation of the claims, Antinori:

- Anticipates claims 1, 4, 6, and 7 of the ’763 patent (or, in the alternative, renders those claims obvious);
- Anticipates claims 5 and 6 of the ’173 patent (or, in the alternative, renders those claims obvious); and
- Anticipates claims 10 and 12 of the ’935 patent (or, in the alternative, renders those claims obvious).

- a. Antinori anticipates (or, in the alternative, renders obvious) claims 1, 4, 6, and 7 of the ’763 patent

Antinori – ’763 Patent Claim Chart	
[1.Pre] A mattress comprising:	<p>Antinori describes a “novel multi-ply mattress.” Antinori at 2:25–26.</p> <p><i>See also:</i></p> <p>“The present invention provides a novel multi-ply mattress which achieves all advantages of known mattresses and provides the same at relatively low cost.” [2:25–27]</p>
[1.1a] a body made of foam having a mechanical characteristic,	<p>Under Mr. Clift’s interpretation of the claims, layer portion 20b is a body of foam latex with a mechanical characteristic (<i>i.e.</i>, an Indentation Load Value (ILD) of 38). Antinori at 3:57–66.<sup>5</sup></p> <div data-bbox="790 907 1250 1148" data-label="Image"> </div> <p>[Excerpt of Fig. 3]</p> <p><i>See also:</i></p> <p>“In the simplest form of the invention, two layers of mattress materials, preferably foam latex, are provided which differ from each other in their Indentation Load Deflection (ILD) values.” [2:27–30]</p> <p>“Reference numerals 11 and 21 define bisecting planes of the respective layers 10, 20 along which the layers are cut or sliced by conventional saws to separate the layer 10 into</p>

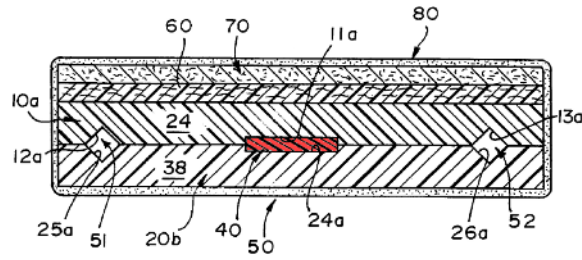
<sup>5</sup> As explained above, the Casper Wave does not infringe the ’763 patent because a single layer of a multi-layer mattress is a “body” within the meaning of the ’763 patent. But under Mr. Clift’s theory of infringement, the ’763 patent would be invalid in light of Antinori, which discloses the claimed channels and inserts on an internal layer of a multi-layer mattress.

<b>Antinori – ’763 Patent Claim Chart</b>	
	layer portions 10a, 10b (FIG. 2) and the layer 20 into layer portions 20a, 20b. The peripheral dimensions of the layer portions 10a, 10b, 20a and 20b are identical and correspond to those of the layers 10, 20, respectively, and the only change is that the thickness of the layer portions 10a, 10b and 20a, 20b have been halved relative to the respective layers 10, 20.” [3:62–4:4]
<b>[1.1b]</b> the body having a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces,	As a rectangular prism, as seen in Fig. 3, layer portion 20b has a top surface, bottom surface, a first and second side surfaces and a first and second end surfaces. Antinori at Fig. 3
<b>[1.1c]</b> at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom; and	<p>The top surface of layer portion 20b includes a plurality of “transverse channels” (<i>e.g.</i>, channel 24a) that extend into layer portion 20b perpendicularly from the surface. Antinori at 4:5–14. While Figure 4 depicts only a single channel (24a) in the medial region, Antinori teaches that the mattress can have “one or more” recesses in that region. <i>Id.</i> at 2:39–43, 3:10–18.</p> <div data-bbox="787 1029 1250 1272" data-label="Image"> </div> <p align="center">[Excerpt of Fig. 3 (annotated)]</p> <p><i>See also:</i></p> <p>“The layer portions 10a, 10b, 20a and 20b are thereafter provided with identically located cross-matching transverse grooves, channels or recesses by conventional cutting tools, such as saws. The layer portion 10a is provided with a centrally located transverse rectangularly outwardly opening groove, channel or recess 11a and on opposite sides thereof is a transverse triangular outwardly opening groove, channel or recess 12a, 13a. Identical transverse channels, slots or recesses 14a, 15a, 16a; 21a, 22a, 23a and 24a, 25a, 26a are formed in the respective layer portions 10b, 20a and 20b.” [4:5–14]</p>

Antinori – ’763 Patent Claim Chart

[1.2a] a plurality of inserts,

One or more inserts (*e.g.*, insert 40) are placed in the medial recesses of layer portion 20b. Antinori at 2:39–43, 3:10–18, 4:18–27. While Figure 4 depicts only a single insert, Antinori teaches multiple inserts can be placed within multiple channels in the medial portion of the mattress. *See id.*



[Excerpt of Fig. 4 (annotated)]

*See also:*

“Medial recesses receive postural inserts of relatively high ILD values . . . .” [Abstract]

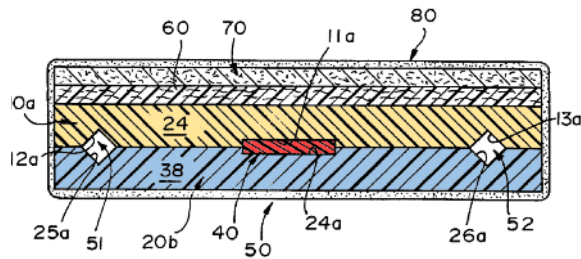
“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]

“Furthermore, although the utilization of one or more transverse recesses, such as the recesses 11a, 24a and 14a, 21a, postural support can be firmed in a selective fashion through the insert 30, while the channels or voids 51, 52 provide necessary pressure relief at the head and foot sections, respectively, of the mattress 50.” [5:1–6]

Antinori – ’763 Patent Claim Chart	
	<p>“The method as defined in claim 15 including the step of placing an insert in an other of the another recesses prior to the performance of the aligning steps.” [Claim 16]</p>
<p><b>[1.2b]</b> each insert having a mechanical characteristic different from the mechanical characteristic of the foam and</p>	<p>The inserts (such as insert 40) “hav[e] a relatively high Indentation Load Deflection (ILD) value, such as ILD 60,” which is different from the mechanical characteristic of the foam (which has an ILD value of 38). Antinori at 4:19–21.</p> <p><i>See also:</i></p> <p>“[A]n insert 40 (FIG. 4), preferably latex having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses 11a, 24a and one of the central recesses 14a, 21a. The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:17–31]</p>
<p><b>[1.2c]</b> affixed within one of the plurality of channels,</p>	<p>One or more inserts (<i>e.g.</i>, insert 40) are affixed in the medial recesses of layer portion 20b using adhesive. Antinori at 2:39–43, 3:10–18, 4:18–27.</p> <div data-bbox="730 1316 1308 1570" data-label="Image"> </div> <p>[Excerpt of Fig. 4 (annotated)]</p> <p><i>See also:</i></p> <p>“Medial recesses receive postural inserts of relatively high ILD values . . . .” [Abstract]</p>

Antinori – ’763 Patent Claim Chart	
	<p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:22–31]</p>
[1.2d] each insert reinforcing the body.	<p>The inserts, which have higher ILDs (<i>i.e.</i>, greater firmness) than the surrounding foam, “afford desired firmness in the postural region of a person . . . lying upon the completed mattress.” Antinori at 4:28–31, 4:44–46.</p> <p><i>See also:</i></p> <p>“[A]n insert 40 (FIG. 4), preferably latex having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses 11a, 24a and one of the central recesses 14a, 21a. The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:17–31]</p>



Antinori – ’763 Patent Claim Chart	
	<p>“Furthermore, although the utilization of one or more transverse recesses, such as the recesses 11a, 24a and 14a, 21a, postural support can be firmed in a selective fashion through the insert 30, while the channels or voids 51, 52 provide necessary pressure relief at the head and foot sections, respectively, of the mattress 50.” [5:1–6]</p>
<b>[4.Pre]</b> The mattress of claim 1 further comprising	See Claim 1, above.
<b>[4.1a]</b> a material that covers at least one of the channels,	<p>Layer portion 10a (yellow) covers the channels in layer portion 20b (blue). Antinori at 4:23–27.</p>  <p>[Excerpt of Fig. 4 (annotated)]</p> <p><i>See also:</i></p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4.” [4:22–27]</p>
<b>[4.1b]</b> the material securing at least one of the inserts within one of the channels.	<p>Layer portion 10a secures the inserts within the recesses. Antinori at 4:23–27.</p> <p><i>See also:</i></p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20 b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4.” [4:22–27]</p>

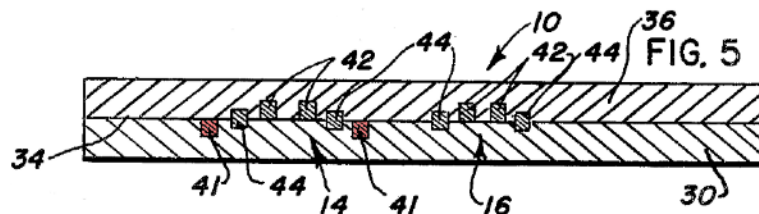
<b>Antinori – ’763 Patent Claim Chart</b>	
<b>[6.Pre]</b> The mattress of claim 1, wherein	See Claim 1, above.
<b>[6.1]</b> at least one of the insert is substantially flush with the at least one of the top and bottom surfaces.	<p>The claims of Antinori teach an embodiment in which a recess is formed only in one layer, such that the insert is “sandwich[ed] . . . between the first layer portion of the first layer and the second layer portion of the second layer.” Antinori at cl. 4. A person of ordinary skill in the art would understand this embodiment to teach that the insert is flush with the top surface of layer portion 20b.</p> <p><i>See also:</i></p> <p>“The method as defined in claim 1 including the steps of forming a recess in at least the first layer portion of the first layer, inserting an insert in the recess, and sandwiching the insert between the first layer portion of the first layer and the second layer portion of the second layer.” [Claim 4]</p> <p>“The method as defined in claim 1 including the steps of forming a recess in at least the first layer portion of the first layer prior to the performance of the unitizing step, thereafter inserting an insert in the recess, and preceding the performance of the unitizing step sandwiching the insert between the first layer portion of the first layer and the second layer portion of the second layer.” [Claim 5]</p>
<b>[7.Pre]</b> The mattress of claim 1, wherein	See Claim 1, above.
<b>[7.1]</b> each channel extends to an opening in at least one of the surfaces adjacent to the channel surface.	<p>The “transverse channels” (e.g., channel 24a) in layer portion 20b extend to the adjacent side surfaces. Antinori at Fig. 3.</p> <div data-bbox="787 1514 1252 1755" data-label="Image"> </div> <p align="center">[Excerpt of Fig. 3 (annotated)]</p> <p><i>See also:</i></p>

Antinori – ’763 Patent Claim Chart	
	<p>“The layer portions 10a, 10b, 20a and 20b are thereafter provided with identically located cross-matching transverse grooves, channels or recesses by conventional cutting tools, such as saws. The layer portion 10a is provided with a centrally located transverse rectangularly outwardly opening groove, channel or recess 11a and on opposite sides thereof is a transverse triangular outwardly opening groove, channel or recess 12a, 13a. Identical transverse channels, slots or recesses 14a, 15a, 16a; 21a, 22a, 23a and 24a, 25a, 26a are formed in the respective layer portions 10b, 20a and 20b.” [4:5–14]</p>

(i) **It would have been obvious to modify Antinori to make the inserts flush with the top surface**

111. To the extent Antinori does not anticipate dependent claim 6 of the ’763 patent, it would have been obvious to a person of ordinary skill in the art to modify the insert 40 of the mattress to be flush with the top surface of layer portion 20b, rather than extending into a recess in layer portion 10a. This embodiment is suggested in dependent claims 4 and 5 in Antinori. This modification of the Figure 4 embodiment would, for example, make it so fewer cuts were necessary in one of the mattress layers, thus simplifying manufacture.

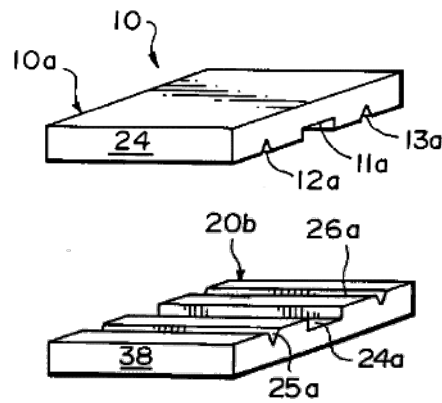
112. Configuring the insert to be flush with the top surface is taught in, *e.g.*, U.S. Patent No. 4,161,045 (Regan). As seen below in Fig. 5, Regan discloses inserts (such as insert 41, in red below) that are flush with the top surface of lower layer 30. It would have been obvious to combine the teachings of Antinori with Regan, as both relate to mattress design and both seek to provide selective firmness over the surface of a mattress.



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113. Thus, it would have been obvious in light of Antinori itself, as well as when Antinori is considered with Regan, for at least one of the inserts to be substantially flush with the top or bottom surfaces, as required by claim 6 of the ’763 patent.

**b. Antinori anticipates (or, in the alternative, renders obvious) claims 5 and 6 of the ’173 patent**

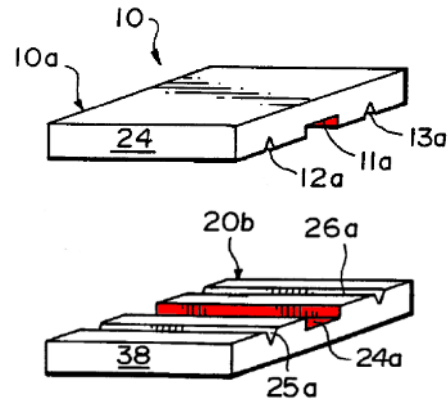
Antinori – ’173 Patent Claim Chart	
<b>[5.Pre]</b> A method of manufacturing a mattress comprising:	<p>Antinori describes “[a] method of manufacturing mattresses.” Antinori at Abstract.</p> <p><i>See also:</i></p> <p>“A method of manufacturing mattresses is achieved by providing first and second layers of latex material having different indentation load deflection values.” [Abstract]</p>
<b>[5.1]</b> providing a body made of foam shaped and sized for use as a mattress;	<p>The method includes providing a body (<i>i.e.</i>, layer portions 10a and 20b) made of foam latex, which together are shaped and sized to be used as a mattress. Antinori at 2:27–30.</p> <div data-bbox="800 1094 1239 1493"></div> <p>[Excerpt of Fig. 3]</p> <p><i>See also:</i></p> <p>“In the simplest form of the invention, two layers of mattress materials, preferably foam latex, are provided which differ from each other in their Indentation Load Deflection (ILD) values.” [2:27–30]</p>

<b>Antinori – ’173 Patent Claim Chart</b>	
<p><b>[5.2]</b> locating a region of the body where increased support is desired;</p>	<p>The method includes locating a region of the body (<i>i.e.</i>, under the “postural region of a person” in the center of the mattress) in which to provide “excellent postural support.” Antinori at 4:27–31, 4:44–47, 5:1–7.</p> <p><i>See also:</i></p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:28–31]</p> <p>“Furthermore, although the utilization of one or more transverse recesses, such as the recesses 11a, 24a and 14a, 21a, postural support can be firmed in a selective fashion through the insert 30, while the channels or voids 51, 52 provide necessary pressure relief at the head and foot sections, respectively, of the mattress 50.” [5:1–6]</p>
<p><b>[5.3]</b> forming a channel into the body within the region; and</p>	<p>The method includes forming “a centrally located transverse rectangularly outwardly opening groove, channel or recess” (11a) in layer portion 10a and an “[i]dentical transverse channel[]” (24a) in the layer portion 20b. These channels are formed in the postural region where increased support is desired. Antinori at 4:5–14.<sup>6</sup></p>

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<sup>6</sup> As explained above, the manufacture of the Casper Wave does not infringe the ’173 patent because the steps are not performed in the claimed order. But under Mr. Clift’s theory of infringement, the ’173 patent would be invalid in light of Antinori.

Antinori – ’173 Patent Claim Chart



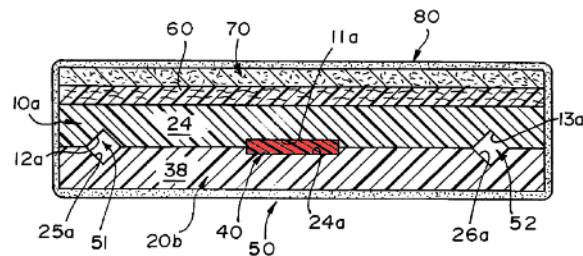
[Excerpt of Fig. 3 (annotated)]

*See also:*

“The layer portions 10a, 10b, 20a and 20b are thereafter provided with identically located cross-matching transverse grooves, channels or recesses by conventional cutting tools, such as saws. The layer portion 10 a is provided with a centrally located transverse rectangularly outwardly opening groove, channel or recess 11a and on opposite sides thereof is a transverse triangular outwardly opening groove, channel or recess 12a, 13a. Identical transverse channels, slots or recesses 14a, 15a, 16a; 21a, 22a, 23a and 24a, 25a, 26a are formed in the respective layer portions 10b, 20a and 20b.” [4:5–14]

**[5.4a]** affixing an insert into the channel

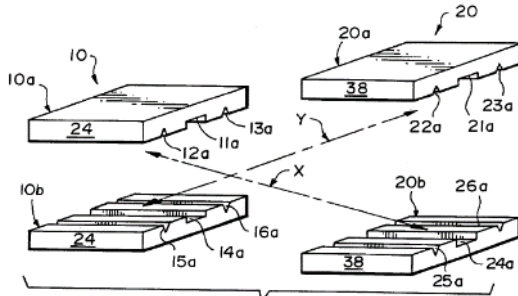
An “insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive.” Antinori at 4:18–27.



[Excerpt of Fig. 4 (annotated)]

*See also:*

Antinori – ’173 Patent Claim Chart	
	<p>“Medial recesses receive postural inserts of relatively high ILD values . . . .” [Abstract]</p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:22–31]</p>
[5.4b] the insert having a greater firmness than the body of foam;	<p>The insert is “firmer” (<i>i.e.</i>, has an ILD of 60, compared to the ILDs of 24 and 38 of the two layer portions) to “afford[] desired firmness in the postural region of a person.” Antinori at 3:57–58, 4:18–31.</p> <p><i>See also:</i></p> <p>“For example, the ILD of one layer might be 24, whereas the ILD of a second layer might be 38.” [2:30–32]</p> <p>“[A]n insert 40 (FIG. 4), preferably latex having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses 11a, 24a and one of the central recesses 14a, 21a. The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces</p>

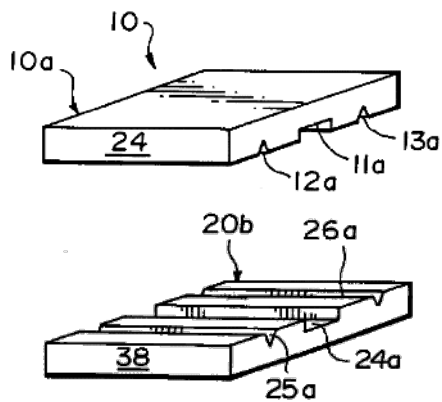
Antinori – ’173 Patent Claim Chart	
	(unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:17–31]
<b>[5.5]</b> wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel.	<p>The two rectangular layer portions 10a and 20b are assembled (<i>i.e.</i>, “brought into overlying aligned bonding relationship to each other”), and, with the a convoluted layer, silk fiber layer, and durable cloth cover, form a mattress. Antinori at 4:22–27, 37–47.<sup>7</sup></p>  <p style="text-align: center;">FIG. 3</p> <p><i>See also:</i></p> <p>“Double headed broken arrows X, Y in FIG. 3 diagrammatically depict the manner in which the layer portions 10 a, 20 b are cross assembled to each other, as are the layer portions 10 b, 20 a.” [4:15–18]</p>
<b>[6.Pre]</b> The method of claim 5	<i>See Claim 5, above.</i>
<b>[6.1]</b> wherein forming the channel further comprises cutting foam out of the body.	<p>The channels are formed “by conventional cutting tools, such as saws.” Antinori at 4:5–8.</p> <p><i>See also:</i></p>

<sup>7</sup> As explained above, the manufacture of the Casper Wave does not infringe the ’173 patent because the accused channels are formed by cutting, not by assembly of rectangular foam pieces. But under Mr. Clift’s theory of infringement, the ’173 patent would be invalid in light of Antinori.



Antinori – ’173 Patent Claim Chart	
	<p>“The layer portions 10a, 10b, 20a and 20b are thereafter provided with identically located cross-matching transverse grooves, channels or recesses by conventional cutting tools, such as saws. The layer portion 10 a is provided with a centrally located transverse rectangularly outwardly opening groove, channel or recess 11 a and on opposite sides thereof is a transverse triangular outwardly opening groove, channel or recess 12 a, 13 a. Identical transverse channels, slots or recesses 14a, 15a, 16a; 21a, 22a, 23a and 24a, 25a, 26a are formed in the respective layer portions 10b, 20a and 20b.” [4:5–14]</p>

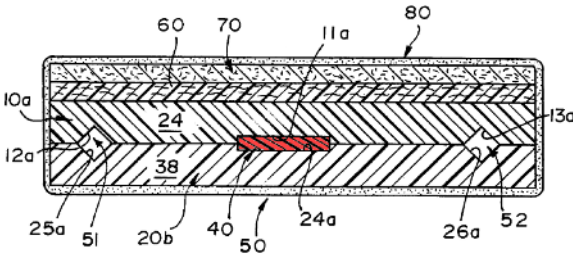
- c. Antinori anticipates (or, in the alternative, renders obvious) claims 10 and 12 of the ’935 patent

Antinori – ’935 Patent Claim Chart	
<p><b>[10.Pre]</b> A method of manufacturing a mattress comprising:</p>	<p>Antinori describes “[a] method of manufacturing mattresses.” Antinori at Abstract.</p> <p><i>See also:</i></p> <p>“A method of manufacturing mattresses is achieved by providing first and second layers of latex material having different indentation load deflection values.” [Abstract]</p>
<p><b>[10.1]</b> providing a plurality of rectangular foam pieces to form a body of foam shaped and sized for use as a mattress;</p>	<p>The method includes providing rectangular foam pieces (e.g., layer portions 10a and 20b) made of foam latex, which together are shaped and sized to be used as a mattress. Antinori at 2:27–30.</p>  <p>[Excerpt of Fig. 3]</p>

Antinori – ’935 Patent Claim Chart	
	<p><i>See also:</i></p> <p>“In the simplest form of the invention, two layers of mattress materials, preferably foam latex, are provided which differ from each other in their Indentation Load Deflection (ILD) values.” [2:27–30]</p> <p>“Reference numerals 11 and 21 define bisecting planes of the respective layers 10, 20 along which the layers are cut or sliced by conventional saws to separate the layer 10 into layer portions 10a, 10b (FIG. 2) and the layer 20 into layer portions 20a, 20b. The peripheral dimensions of the layer portions 10a, 10b, 20a and 20b are identical and correspond to those of the layers 10, 20, respectively, and the only change is that the thickness of the layer portions 10a, 10b and 20a, 20b have been halved relative to the respective layers 10, 20” [3:62–4:4]</p>
[10.2] locating a region of the body where increased support is desired;	<p>The method includes locating a region of the body (<i>i.e.</i>, under the “postural region of a person” in the center of the mattress) in which to provide “excellent postural support.” Antinori at 4:27–31, 4:44–47, 5:1–7.</p> <p><i>See also:</i></p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:28–31]</p>

Antinori – ’935 Patent Claim Chart	
	<p>“Furthermore, although the utilization of one or more transverse recesses, such as the recesses 11a, 24a and 14a, 21a, postural support can be firmed in a selective fashion through the insert 30, while the channels or voids 51, 52 provide necessary pressure relief at the head and foot sections, respectively, of the mattress 50.” [5:1–6]</p>
<p>[10.3] assembling the rectangular foam pieces to form the body having a channel in the region; and</p>	<p>The two rectangular layer portions 10a and 20b are assembled (<i>i.e.</i>, “brought into overlying aligned bonding relationship to each other”) and include “a centrally located transverse rectangularly outwardly opening groove, channel or recess” (11a) in layer portion 10a and an “[i]dentical transverse channel[.]” (24a) in the layer portion 20b. These channels are formed in the postural region where increased support is desired. Antinori at 4:5–14, 22–27, 37–47.<sup>8</sup></p> <div data-bbox="800 850 1242 1249" data-label="Image"> </div> <p>[Excerpt of Fig. 3 (annotated)]</p> <p>See also:</p> <p>“Double headed broken arrows X, Y in FIG. 3 diagrammatically depict the manner in which the layer portions 10 a, 20 b are cross assembled to each other, as are the layer portions 10 b, 20 a.” [4:15–18]</p>

<sup>8</sup> As explained above, the manufacture of the Casper Wave does not infringe the ’935 patent because, *inter alia*, the accused channels are formed by cutting, not by assembly of rectangular foam pieces, and the steps are not performed in the claimed order. But under Mr. Clift’s theory of infringement, the ’935 patent would be invalid in light of Antinori.

Antinori – ’935 Patent Claim Chart	
<p><b>[10.4a]</b> affixing at least one insert having planar top and bottom surfaces into the channel,</p>	<p>An insert (40), with planar top and bottom surfaces, is inserted in the recess 24a of the layer portion 20b after the application of adhesive.” Antinori at 4:18–27.</p>  <p><i>See also:</i></p> <p>“Medial recesses receive postural inserts of relatively high ILD values . . . .” [Abstract]</p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:22–31]</p>
<p><b>[10.4b]</b> wherein the channel has a physical shape</p>	<p>The channel (<i>e.g.</i>, 11a and 24a) is shaped to receive insert 40. Antinori at 4:5–14, 22–27, 37–47.</p>

Antinori – ’935 Patent Claim Chart	
configured to receive the at least one insert,	<p><i>See also:</i></p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4.” [4:22–27]</p>
[10.4c] the insert having a different mechanical property than the body of foam,	<p>The insert is “firmer” than the foam body (<i>i.e.</i>, has an ILD of 60, compared to the ILDs of 24 and 38 of the two layer portions). Antinori at 3:57–58, 4:18–31.</p> <p><i>See also:</i></p> <p>“For example, the ILD of one layer might be 24, whereas the ILD of a second layer might be 38.” [2:30–32]</p> <p>“[A]n insert 40 (FIG. 4), preferably latex having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses 11a, 24a and one of the central recesses 14a, 21a. The insert 40 is inserted in the recess 24a of the layer portion 20b after the application of adhesive to either or both of the opposing surfaces (unnumbered) of the layer portions 10a, 20b which are thereafter brought into overlying aligned bonding relationship to each other, in the manner best illustrated in FIG. 4. The firmer insert 40 affords desired firmness in the</p>

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<b>Antinori – ’935 Patent Claim Chart</b>	
	postural region of a person P (FIG. 4) lying upon the completed mattress which is generally designated by the reference numeral 50.” [4:17–31]
<b>[10.4d]</b> and wherein the insert does not entirely fill the channel.	<p>Antinori teaches that “one or more inserts” can be placed in the central recess. If more than one insert is used, each insert would not “entirely fill the channel.” Antinori at 3:10–18. Even where only one insert fills the channel, the use of adhesive would teach a person of ordinary skill in the art that the insert would not fill the entire channel. <i>Id.</i> at 4:22–27.</p> <p><i>See also:</i></p> <p>“An insert or inserts are placed in one or more of the recesses located at the central or medial portions of the layer portions, and a layer portion of 24 ILD value is unitized to a layer portion of 38 ILD value with, of course, the recesses (and insert or inserts) in opposing relationship to each other. Thus, in this fashion, two layers or plies of mattress material of differing ILD values can be manufactured into two mattresses, each of which includes a composite of the two ILD values to achieve the benefits afforded thereby, particularly as supplemented by the inserts located at the medial portions of the laminated mattresses and the voids or recesses located at the opposite ends (head and foot sections thereof).” [2:39–51]</p> <p>“Furthermore, through the utilization of one or more transverse recesses, such as the recesses 11a, 24a and 14a, 21a, postural support can be firmed in a selective fashion through the insert 40, while the channels or voids 51, 52 provide necessary pressure relief at the head and foot sections, respectively, of the mattress 50. In this fashion, ultimate comfort and long life is achieved at minimum costs.” [5:1–6]</p>
<b>[12.Pre]</b> The method of manufacturing a mattress of claim 10,	<i>See</i> Claim 10, above.
<b>[12.1]</b> wherein the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof.	<p>The insert is comprises foam (<i>i.e.</i>, latex). <i>See</i> Antinori at 2:27–30.</p> <p><i>See also:</i></p>

<b>Antinori – ’935 Patent Claim Chart</b>	
	<p>“[P]rior to such cross assembly, an insert 40 (FIG. 4), preferably latex having a relatively high Indentation Load Deflection (ILD) value, such as ILD 60, is inserted in one of the central recesses 11a, 24a and one of the central recesses 14a, 21a.” [4:17–20]</p>

**(i) It would have been obvious to modify Antinori to have inserts that do not entirely fill the channel**

114. To the extent that Antinori does not teach that the “insert does not entirely fill the channel,” modifying insert 40 in Antinori so that it does not entirely fill recess 24a would be an obvious modification to a person of ordinary skill in the art.

115. For example, configuring an insert to not entirely fill a recess was taught in, *e.g.*, in DE 3937214 A1 (Kuehnegger). As explained in Paragraph 104, Kuehnegger teaches not entirely filling a channel (either laterally or to its full depth) “in order to produce [a] desired resistance pattern.” Kuehnegger at 8. Indeed, it was known by persons of ordinary skill in the art at the time that foam modification and convolution affects the feel of the mattress—referred to in the art as “surface modification.” Having the foam insert not fill the entire channel would be an obvious design option to selectively create a softer surface for a customer. It would have been obvious to combine the teachings of Antinori with Kuehnegger, as both relate to mattress design and both seek to provide selective firmness over the surface of a mattress.

116. Thus, it would have been obvious in light of Antinori itself, as well as when Antinori is considered with Kuehnegger, for the insert to not entirely fill the channel, as required by claim 10 of the ’935 patent.

**(ii) It would have been obvious to modify Antinori to have foam inserts**

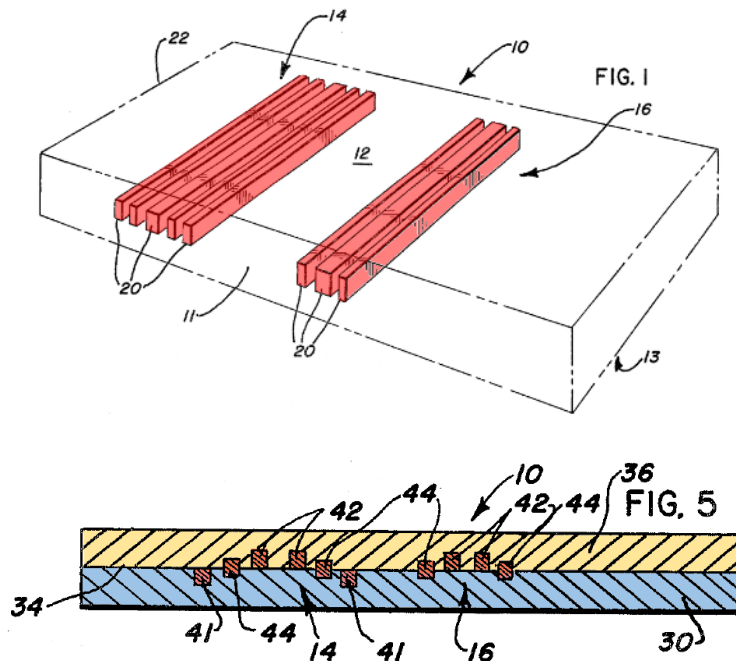
117. Furthermore, to the extent Antinori does not expressly or inherently teach that “the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination

thereof,” modifying the inserts in Antinori to be made of foam would be an obvious modification to a person of ordinary skill in the art. Foam is a versatile material and, at the time of the Asserted Patents, could achieve the resiliency needed for the ribs in the invention in Antinori. The use of foam as an insert was also described in many references at the time, including Scheuch.

118. Thus, it would have been obvious in light of Antinori itself, in combination with the knowledge of a person of ordinary skill in the art, as well as in combination with Scheuch, to manufacture the mattress described in Antinori using foam ribs to insert into the recesses.

## 2. U.S. Patent No. 4,161,045 (Regan)

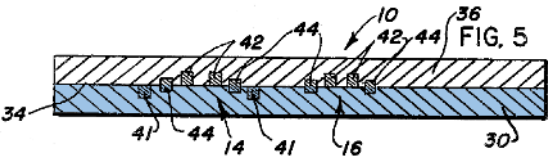
119. U.S. Patent No. 4,161,045 to John Regan (“Regan”) is titled “Mattress.” Regan was filed on December 19, 1997, and issued on July 17, 1979. Regan is thus prior art to the Asserted Patents under 35 U.S.C. § 102(b). Regan describes “[a] mattress of improved support having planar top and bottom surfaces . . . with at least two sets of transversely extending ribs” that are “less compressible than the material of the mattress.” Regan at Abstract. These ribs are “positioned within the mattress 10 to correspond to the areas of greatest weight of a user.” *Id.* at 2:35–37.



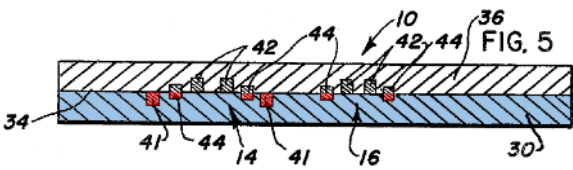


120. As described in the claim charts below, Regan:

- Anticipates claims 1, 4, 6, and 7 of the ’763 patent (or, in the alternative, renders those claims obvious);
  - Anticipates claims 5 and 6 of the ’173 patent (or, in the alternative, renders those claims obvious); and
  - Anticipates claims 10 and 12 of the ’935 patent (or, in the alternative, renders those claims obvious).
- a. **Regan anticipates (or, in the alternative, renders obvious) claims 1, 4, 6, and 7 of the ’763 patent**

Regan – ’763 Patent Claim Chart	
[1.Pre] A mattress comprising:	<p>Regan describes “a single- or multi-layer mattress.” Regan at 1:31–32.</p> <p><i>See also:</i></p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight.” [1:31–37]</p>
[1.1a] a body made of foam having a mechanical characteristic,	<p>The mattress is made “of a resilient material, such as molded foam,” and “may be fabricated from two similar or dissimilar layers.” Regan at 2:17–22. In the multi-layer embodiment, the mattress includes a lower layer 30 (highlighted in blue below), which is the “body.” <i>Id.</i> at 3:29–34.<sup>9</sup></p> 

<sup>9</sup> As explained above, the Casper Wave does not infringe the ’763 patent because a single layer of a multi-layer mattress is a “body” within the meaning of the ’763 patent. But under Plaintiffs’ theory of infringement, the ’763 patent would be invalid in light of Regan, which discloses the claimed channels and inserts on an internal layer of a multi-layer mattress.

Regan – ’763 Patent Claim Chart	
	<p><i>See also:</i></p> <p>“FIG. 1 illustrates a mattress, generally designated 10, embodying the present invention. The mattress 10 is illustrated as a single layer 11 of a resilient material, such as molded foam, but it is to be understood that the mattress 10 may be fabricated from two similar or dissimilar layers, as described below.” [2:17–22]</p>
<p><b>[1.1b]</b> the body having a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces,</p>	<p>The lower layer, as a rectangular prism, has a top surface, a bottom surface, a first and second side surfaces and a first and second end surfaces. Regan at 3:9–12.</p> <p><i>See also:</i></p> <p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30.” [3:9–15]</p>
<p><b>[1.1c]</b> at least one of the top and bottom surfaces including a plurality of channels extending into the body perpendicularly therefrom; and</p>	<p>The top surface of lower layer 30 has several “recess[es]” extending in perpendicularly. Regan at 3:17–21.</p>  <p><i>See also:</i></p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the</p>

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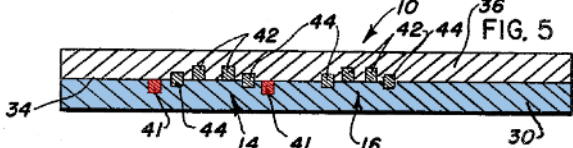
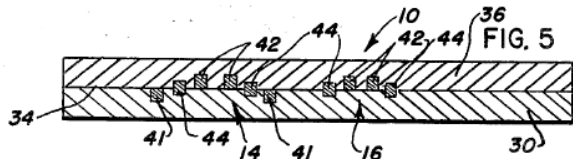
<b>Regan – ’763 Patent Claim Chart</b>	
	<p>layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<b>[1.2a]</b> a plurality of inserts,	<p>Ribs (<i>i.e.</i>, inserts) “lie[] in [the] recess[es] within the lower layer 30.” Regan at 3:17–21.</p> <p><i>See also:</i></p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<b>[1.2b]</b> each insert having a mechanical characteristic different from the mechanical characteristic of the foam and	<p>The ribs are “less compressible than the upper layer 36 in order to provide enhanced localized support.” Regan at 3:26–28.</p>

Regan – ’763 Patent Claim Chart	
	<p><i>See also:</i></p> <p>“The ribs, which may be continuous or discontinuous, are less compressible than the material of the mattress and are spaced apart longitudinally from each other within each set. The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p>
<p>[1.2c] affixed within one of the plurality of channels,</p>	<p>Ribs (<i>i.e.</i>, inserts) “lie[] in [the] recess[es] within the lower layer 30.” Regan at 3:17–21.</p> <div data-bbox="735 1121 1308 1281" data-label="Image"> </div> <p><i>See also:</i></p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some</p>

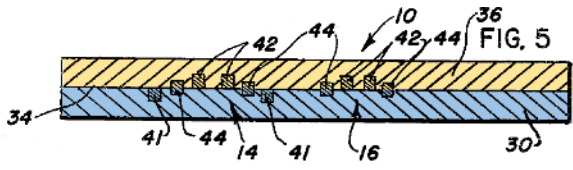
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Regan – ’763 Patent Claim Chart	
	<p>ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<p><b>[1.2d]</b> each insert reinforcing the body.</p>	<p>The ribs (<i>i.e.</i>, inserts) are “of relatively low compressibility . . . to decreas[e] the overall compressibility of the mattress at those points where the ribs are located.” Regan at 1:21–43. As such, the ribs provide “enhanced localized support.” <i>Id.</i> at 3:26–28.</p> <p><i>See also:</i></p> <p>“The ribs, which may be continuous or discontinuous, are less compressible than the material of the mattress and are spaced apart longitudinally from each other within each set. The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p> <p>“It is readily apparent that, upon the application of body weight to the mattress 10, each rib 20 is compressible independently of the others, thereby supplying the greatest resistance to compression in those areas where the heaviest force is applied.” [2:47–51]</p>
<p><b>[4.Pre]</b> The mattress of claim 1 further comprising</p>	<p><i>See</i> Claim 1, above.</p>
<p><b>[4.1a]</b> a material that covers at least one of the channels,</p>	<p>Upper layer 36 covers the recesses in lower layer 30. Regan at 3:5–14.</p> <p><i>See also:</i></p>

<b>Regan – ’763 Patent Claim Chart</b>	
	<p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30.” [3:9–15]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<b>[4.1b]</b> the material securing at least one of the inserts within one of the channels.	<p>Upper layer 36 thus secures inserts within the recesses in lower layer 30. Regan at 3:5–14, 29–38.</p> <p><i>See also:</i></p> <p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30.” [3:9–15]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<b>[6.Pre]</b> The mattress of claim 1, wherein	<i>See Claim 1, above.</i>

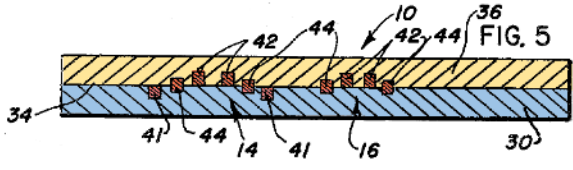
Regan – ’763 Patent Claim Chart	
<p>[6.1] at least one of the insert is substantially flush with the at least one of the top and bottom surfaces.</p>	<p>Ribs 41 are substantially flush with the top surface of lower layer 30.</p>  <p><i>See also:</i></p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<p>[7.Pre] The mattress of claim 1, wherein</p>	<p><i>See Claim 1, above.</i></p>
<p>[7.1] each channel extends to an opening in at least one of the surfaces adjacent to the channel surface.</p>	<p>Regan teaches that each channel (<i>i.e.</i>, recess) extends to an opening in at least one of the surfaces adjacent to the channel surface (<i>i.e.</i>, the side surfaces), as seen in the “longitudinal sectional view” of Figure 5.</p>  <p><i>See also:</i></p> <p>“The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:37–40]</p>

- b. Regan anticipates (or, in the alternative, renders obvious) claims 5 and 6 of the ’173 patent

Regan – ’173 Patent Claim Chart	
<p><b>[5.Pre]</b> A method of manufacturing a mattress comprising:</p>	<p>Regan describes “[a] method of manufacturing a mattress according to the invention.” Regan at 3:5–8.</p> <p><i>See also:</i></p> <p>“A method of manufacturing a mattress according to the invention is to join two similar or dissimilar layers of resilient material, as by an adhesive, with at least two sets of less compressible ribs disposed therebetween.” [3:5–9]</p>
<p><b>[5.1]</b> providing a body made of foam shaped and sized for use as a mattress;</p>	<p>The method involves providing a body “of a resilient material, such as molded foam,” and “may be fabricated from two similar or dissimilar layers,” such as lower layer 30 (blue) and upper layer 36 (yellow). Regan at 2:17–22.</p>  <p><i>See also:</i></p> <p>“FIG. 1 illustrates a mattress, generally designated 10, embodying the present invention. The mattress 10 is illustrated as a single layer 11 of a resilient material, such as molded foam, but it is to be understood that the mattress 10 may be fabricated from two similar or dissimilar layers, as described below.” [2:17–22]</p> <p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30.” [3:9–15]</p>
<p><b>[5.2]</b> locating a region of the body where increased support is desired;</p>	<p>The Regan mattress targets “the areas of greatest body weight,” such as “the shoulder or buttocks area.” Regan at 1:31–36, 2:58–61.</p>



Regan – ’173 Patent Claim Chart	
	<p><i>See also:</i></p> <p>“The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“Each set 14 and 16 is positioned within the mattress 10 to correspond to the areas of greatest weight of a user (not shown) lying on the top surface 12. In FIG. 1, if the head of the user is closest to the end 22 of the mattress 10, the set 14 corresponds to the shoulder area of the user and the set 16 corresponds to the area of the user's buttocks. A sufficient number of ribs 20 is provided in each set 14 and 16 to provide a sufficiently wide support area. Although only two sets of ribs are shown in FIG. 1, it is to be understood that additional ribs may be provided for the calf area, the head area, etc.” [2:35–46]</p>
[5.3] forming a channel into the body within the region; and	<p>The method involves forming “recess[es]” (<i>i.e.</i>, channels) “at points corresponding to the areas of greatest body weight.” Regan at 1:31–36, 3:17–18.</p> <p><i>See also:</i></p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>

Regan – ’173 Patent Claim Chart	
<p><b>[5.4a]</b> affixing an insert into the channel</p>	<p>Ribs (<i>i.e.</i>, inserts) “lie[] in [the] recess[es]” in the upper and lower layers. Regan at 3:17–21, 3:29–38.</p>  <p><i>See also:</i></p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<p><b>[5.4b]</b> the insert having a greater firmness than the body of foam;</p>	<p>The ribs (<i>i.e.</i>, inserts) are “of relatively low compressibility . . . to decreas[e] the overall compressibility of the mattress at those points where the ribs are located.” Regan at 1:21–43. In particular, the ribs are “less compressible than the</p>

Regan – ’173 Patent Claim Chart	
	<p>upper layer 36 in order to provide enhanced localized support.” <i>Id.</i> at 3:26–28.</p> <p><i>See also:</i></p> <p>“The ribs, which may be continuous or discontinuous, are less compressible than the material of the mattress and are spaced apart longitudinally from each other within each set. The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p>
[5.5] wherein forming the channel comprises assembling a plurality of rectangular foam pieces into a mattress that includes the channel.	<p>Rectangular foam pieces lower layer 30 and upper layer 36 are “join[ed] . . . by an adhesive,” with the recesses (<i>i.e.</i>, channels) included in the body.<sup>10</sup></p> <p><i>See also:</i></p> <p>“A method of manufacturing a mattress according to the invention is to join two similar or dissimilar layers of resilient material, as by an adhesive, with at least two sets of less compressible ribs disposed therebetween. FIG. 4 illustrates such a construction. The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40</p>

<sup>10</sup> As explained above, the manufacture of the Casper Wave does not infringe the ’173 patent because the accused channels are formed by cutting, not by assembly of rectangular foam pieces. But under Plaintiffs’ theory of infringement, the ’173 patent would be invalid in light of Regan.

<b>Regan – ’173 Patent Claim Chart</b>	
	<p>which engages the upper surface 34 of the lower layer 30. Two sets 14 and 16 of ribs 20 lie transversely across the lower layer 30 at desired points, as in FIGS. 1 through 3. Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:5–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<b>[6.Pre]</b> The method of claim 5	<i>See</i> Claim 5, above.
<b>[6.1]</b> wherein forming the channel further comprises cutting foam out of the body.	<p>Regan, though silent on method of forming channels, would inherently describe forming channels through cutting, as cutting was the most common way of forming channels in the art at the time of the Asserted Patents.</p> <p><i>See also:</i></p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p>

**(i) It would have been obvious to cut foam out of the body**

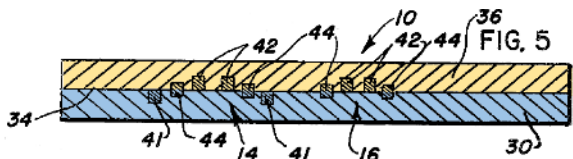
121. Using cutting to form the recesses in Regan is inherent in the reference, as it was one of the only known methods of forming recesses at the time of the Asserted Patents. To the extent “forming the channel further comprises cutting foam out of the body” as required by claim 6 is not inherent in Regan, it would have been obvious in light of Regan and the knowledge of a

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person of ordinary skill in the art, including for manufacturing reasons. The two most common methods at the time of forming channels/recesses in foam were cutting and molding.

122. Indeed, during prosecution of the ’173 patent, the examiner rejected certain claims as obvious because “[t]he method of forming the channels whether by cutting or molding is an obvious matter of design choice.” ’173 Prosecution History, Office Action at 2 (Jul. 31, 2003). Dreamwell never disputed the examiner’s characterization of using cutting as “an obvious matter of design choice.” It therefore would have been obvious to a person of ordinary skill in the art to manufacture the mattress described in Regan by using cutting to form channels in the body.

**c. Regan anticipates (or, in the alternative, renders obvious) claims 10 and 12 of the ’935 patent**

Regan – ’935 Patent Claim Chart	
<b>[10.Pre]</b> A method of manufacturing a mattress comprising:	Regan describes “[a] method of manufacturing a mattress according to the invention.” Regan at 3:5–8.  <i>See also:</i>  “A method of manufacturing a mattress according to the invention is to join two similar or dissimilar layers of resilient material, as by an adhesive, with at least two sets of less compressible ribs disposed therebetween.” [3:5–9]
<b>[10.1]</b> providing a plurality of rectangular foam pieces to form a body of foam shaped and sized for use as a mattress;	The method involves providing a body “of a resilient material, such as molded foam,” and “may be fabricated from two similar or dissimilar layers,” such as lower layer 30 (blue) and upper layer 36 (yellow). Regan at 2:17–22.    <i>See also:</i>  “FIG. 1 illustrates a mattress, generally designated 10, embodying the present invention. The mattress 10 is

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Regan – ’935 Patent Claim Chart	
	<p>illustrated as a single layer 11 of a resilient material, such as molded foam, but it is to be understood that the mattress 10 may be fabricated from two similar or dissimilar layers, as described below.” [2:17–22]</p> <p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30.” [3:9–15]</p>
[10.2] locating a region of the body where increased support is desired;	<p>The Regan mattress targets “the areas of greatest body weight,” such as “the shoulder or buttocks area.” Regan at 1:31–36, 2:58–61.</p> <p><i>See also:</i></p> <p>“The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“Each set 14 and 16 is positioned within the mattress 10 to correspond to the areas of greatest weight of a user (not shown) lying on the top surface 12. In FIG. 1, if the head of the user is closest to the end 22 of the mattress 10, the set 14 corresponds to the shoulder area of the user and the set 16 corresponds to the area of the user's buttocks. A sufficient number of ribs 20 is provided in each set 14 and 16 to provide a sufficiently wide support area. Although only two sets of ribs are shown in FIG. 1, it is to be understood that additional ribs may be provided for the calf area, the head area, etc.” [2:35–46]</p>
[10.3] assembling the rectangular foam pieces to form the body having a channel in the region; and	<p>Regan teaches assembling the rectangular foam pieces (<i>i.e.</i>, lower layer 30 and upper layer 36) to form the body having a channel in the region. The method involves forming “recess[es]” (<i>i.e.</i>, channels) “at points corresponding to the areas of greatest body weight.” Regan at 1:31–36, 3:17–18.</p> <p><i>See also:</i></p>

Regan – ’935 Patent Claim Chart	
	<p>“A method of manufacturing a mattress according to the invention is to join two similar or dissimilar layers of resilient material, as by an adhesive, with at least two sets of less compressible ribs disposed therebetween. FIG. 4 illustrates such a construction. The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30. Two sets 14 and 16 of ribs 20 lie transversely across the lower layer 30 at desired points, as in FIGS. 1 through 3. Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:5–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
<p><b>[10.4a]</b> affixing at least one insert having planar top and bottom surfaces into the channel,</p>	<p>The method involves forming “recess[es]” (<i>i.e.</i>, channels) “at points corresponding to the areas of greatest body weight,” and then inserting ribs (<i>i.e.</i>, inserts) “in [the] recess[es].” Regan at 1:31–36, 3:17–21, 3:29–38. The ribs have planar top and bottom surfaces.</p> <div data-bbox="735 1545 1299 1705" data-label="Image"> </div> <p><i>See also:</i></p>

Regan – ’935 Patent Claim Chart	
	<p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p> <p>“Disposed within the mattress 10 are two sets 14 and 16 of support ribs 20. Each rib 20 is of a material of less compressibility than the material of the mattress layer 11 and extends substantially entirely across the width of the mattress 10. Although the ribs 20 illustrated in FIGS. 1 through 6 are of rectangular cross section, they need not be rectangular, but may be of a circular cross section or of another desired configuration.” [2:27–34]</p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
[10.4b] wherein the channel has a physical shape configured to receive the at least one insert,	<p>The recesses are shaped to receive the ribs (<i>i.e.</i>, inserts). Regan at 3:17-22.</p> <p><i>See also:</i></p> <p>“Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer</p>



Regan – ’935 Patent Claim Chart	
	<p>36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:17–22]</p> <p>“FIG. 5 illustrates a multi-layer mattress 10 comprising a lower layer 30 and an upper layer 36, similar to the corresponding layers of FIG. 4, with two sets 14 and 16 of ribs 41-44 of similar cross section disposed between the layers 30 and 36 in an inverted flattened U, to serve the same function as the ribs 20 in FIG. 3. In the case of FIG. 5, some ribs 41 lie entirely within the lower layer 30, some ribs 42 lie entirely within the upper layer 36, and some ribs 44 extend into the upper layer 36 from within the lower layer 30.” [3:29–38]</p>
[10.4c] the insert having a different mechanical property than the body of foam,	<p>The ribs (<i>i.e.</i>, inserts) are “of relatively low compressibility . . . to decreas[e] the overall compressibility of the mattress at those points where the ribs are located.” Regan at 1:21–43. In particular, the ribs are “less compressible than the upper layer 36 in order to provide enhanced localized support.” <i>Id.</i> at 3:26–28.</p> <p><i>See also:</i></p> <p>“The ribs, which may be continuous or discontinuous, are less compressible than the material of the mattress and are spaced apart longitudinally from each other within each set. The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“According to the present invention, a single- or multi-layered mattress is provided which prevents ‘hammocking’ of the human body by providing several sets of support ribs of relatively low compressibility which extend transversely of the mattress and which are spaced longitudinally apart from one another at points corresponding to the areas of greatest body weight. The ribs extend substantially entirely across the mattress, and each rib is of a width substantially less than the width of an area to be supported.” [1:31–40]</p>

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<b>Regan – ’935 Patent Claim Chart</b>	
	<p>“A method of manufacturing a mattress according to the invention is to join two similar or dissimilar layers of resilient material, as by an adhesive, with at least two sets of less compressible ribs disposed therebetween. FIG. 4 illustrates such a construction. The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30. Two sets 14 and 16 of ribs 20 lie transversely across the lower layer 30 at desired points, as in FIGS. 1 through 3. Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:5–22]</p>
<p><b>[10.4d]</b> and wherein the insert does not entirely fill the channel.</p>	<p>The ribs can be “discontinuous,” thus not entirely filling the channel. Regan at 1:51–53, Fig. 1.</p> <p><i>See also:</i></p> <p>“The ribs, which may be continuous or discontinuous, are less compressible than the material of the mattress and are spaced apart longitudinally from each other within each set. The sets are spaced apart longitudinally to correspond in position to the shoulder area and buttocks area of the user to provide maximum support for body areas of greater weight, and hold the body generally straight.” [Abstract]</p> <p>“Within each set, one or more of the ribs may be of a larger cross section than the remaining ribs in order to provide localized support within the area of that set. Alternately, ribs of similar size may be disposed vertically from one another as well as horizontally so as to provide localized support relatively close to the level of the user's body. One embodiment of the invention utilizes discontinuous ribs to provide independent support within an area of enhanced support.” [1:44–53]</p>
<p><b>[12.Pre]</b> The method of manufacturing a mattress of claim 10,</p>	<p><i>See Claim 10, above.</i></p>

<b>Regan – ’935 Patent Claim Chart</b>	
<p><b>[12.1]</b> wherein the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof.</p>	<p>The ribs, which can be “molded from the lower layer 30,” can be made of molded foam.</p> <p><i>See also:</i></p> <p>“FIG. 1 illustrates a mattress, generally designated 10, embodying the present invention. The mattress 10 is illustrated as a single layer 11 of a resilient material, such as molded foam, but it is to be understood that the mattress 10 may be fabricated from two similar or dissimilar layers, as described below.” [2:17–22]</p> <p>“The mattress 10 of FIG. 4 includes a lower layer 30 with a planar support engaging bottom surface 32 (support not shown), and a generally planar top surface 34. An upper layer 36 has a planar body supporting top surface 38 and a planar bottom surface 40 which engages the upper surface 34 of the lower layer 30. Two sets 14 and 16 of ribs 20 lie transversely across the lower layer 30 at desired points, as in FIGS. 1 through 3. Each rib 20 lies in a recess within the lower layer 30 or, if the lower layer 30 is of less resilience than the upper layer 36, each rib 20 may be molded from the lower layer 30 as a unitary component thereof. Each rib 20 is received in a complementary recess in the upper layer 36.” [3:9–22]</p>

**(i) It would have been obvious to modify Regan to have inserts that do not entirely fill the channel**

123. To the extent that Regan does not teach that the “insert does not entirely fill the channel,” modifying the ribs in Regan so they do not entirely fill the recesses would be an obvious modification to a person of ordinary skill in the art.

124. For example, configuring an insert to not entirely fill a recess was taught in, *e.g.*, in DE 3937214 A1 (Kuehnegger). As explained in Paragraph 104, Kuehnegger teaches not entirely filling a channel (either laterally or to its full depth) “in order to produce [a] desired resistance pattern.” Kuehnegger at 8. Indeed, it was known by persons of ordinary skill in the art at the time that foam modification and convolution affects the feel of the mattress—referred to in the art as

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“surface modification.” Having the foam insert not fill the entire channel would be an obvious design option to selectively create a softer surface for a customer. It would have been obvious to combine the teachings of Regan with Kuehnegger, as both relate to mattress design and both seek to provide selective firmness over the surface of a mattress.

125. Thus, it would have been obvious in light of Regan itself, as well as when Regan is considered with Kuehnegger, for the insert to not entirely fill the channel, as required by claim 10 of the ’935 patent.

### **d. It would have been obvious to modify Regan to have foam inserts**

126. To the extent Regan does not expressly or inherently teach that “the inserts comprise a string of pocket springs, foam, individual coils in a foam strip, or a combination thereof,” modifying the inserts in Regan to be made of foam would be an obvious modification to a person of ordinary skill in the art. Foam is a versatile material and, at the time of the Asserted Patents, could achieve the resiliency needed for the ribs in the invention in Regan. The use of foam as an insert was also described in many references at the time, including Scheuch.

127. Thus, it would have been obvious in light of Regan itself, in combination with the knowledge of a person of ordinary skill in the art, as well as in combination with Scheuch, to manufacture the mattress described in Regan using foam ribs to insert into the recesses.

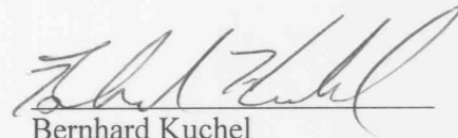
### **D. Secondary Considerations of Non-Obviousness**

128. I considered secondary considerations of non-obviousness as part of my analysis, including commercial success, long-felt but unsolved needs, copying, praise, unexpected results, industry acceptance, failure of others, and skepticism by experts. I am not aware of Plaintiffs having identified any secondary considerations that they contend demonstrate the non-obviousness of the claims. I am also not aware of any secondary considerations that tip the scale in favor of non-obviousness. I reserve the right to supplement my analysis of secondary considerations of non-obviousness to the extent Plaintiffs identify any such considerations in the future.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed this 15th day of November, 2017, in King, North Carolina.



Bernhard Kuchel